



U.S. Department  
of Transportation

**National Highway  
Traffic Safety  
Administration**

400 Seventh Street, S.W.  
Washington, D.C. 20590

Dear Crash Data Researchers/Users:

Thank you for choosing crash data from the National Highway Traffic Safety Administration (NHTSA) for your research or other use. The information contained in this motor vehicle crash report is collected, maintained and distributed in accordance with Public Law 89-564. In accordance with this Public Law, NHTSA is required not to release any case information until completion of quality control procedures. These procedures include a review of the case material to extract all names, licenses and registration numbers, non-coded interview material, non-research related researcher comments in the margins, non-factual data, and the production number portion of the vehicle identification number (VIN).

If you requested NHTSA to query its database files in order to identify a specific crash, then that query was made using non-personal descriptors you provided for use in our search. This motor vehicle crash may have been identified from a data search and matches the general, non-personal descriptors you provided, but we cannot confirm that this is the specific crash report you requested.

If you have any questions with regard to the above procedures, please contact the Field Operations Branch, Crash Investigation Division, National Center for Statistics and Analysis at 202-366-4820. Again, please be advised that we cannot confirm that this is the case that you have specifically requested nor can we certify the information to be correct.

\*\*\*    \*\*\*    \*\*\*



AUTO SAFETY HOTLINE  
(800) 424-9393  
Wash. D.C. Area 366-0123

**DYNAMIC SCIENCE, INC.**  
**In-Depth Accident Investigation**

**Contract DTNH22-87C-47169**  
**Case DSI-93-AB-007**

 1993

## TECHNICAL SUMMARY

CONTRACTOR: Dynamic Science, Inc.  
CONTRACT NUMBER: DTNH22-87C-47169  
CASE NUMBER: Case DSI-93-AB-007

[REDACTED]

This two vehicle collision occurred on a six-lane, divided, urban roadway on an early spring weekday afternoon in [REDACTED], North Carolina. It was raining and the roadway was wet.

Vehicle 1, a 1990 Lincoln Town Car, was being driven west in westbound travel lane two at a speed estimated to be between 64 and 72 KPH (40 and 45 MPH) by the restrained, 35 year old female driver (the case occupant). Sitting in the right front seating position was a restrained 11 year old male.

Vehicle 2, a 1979 Ford Mustang three-door, was being driven east in eastbound travel lane two by the unrestrained 21 year old male driver at a speed estimated to be between 72 and 80 KPH (45 and 50 MPH).

The driver of Vehicle 2, in an attempt to change lanes, lost control of his vehicle and began a left side leading skid. Vehicle 2, in this configuration, crossed the raised concrete median and slid into the travel path of Vehicle 1. The entire front plane of Vehicle 1 impacted the left rear side plane of Vehicle 2. At impact the passenger side airbag deployed, but the driver's side airbag did not.

The Delta V for Vehicle 1 was computed, using CRASH III PC, as 16.3 KPH (10.1 MPH) using a CDC of 12FDEW1 and a PDOF of 350 degrees. The combined direct and induced damage width was 175 cm (69 in) and the maximum crush depth was 32 cm (12.6 in) at C<sub>1</sub>. The Delta V for Vehicle 2 was computed, using CRASH III PC, as 25.8 KPH (16.1 MPH) using a CDC of 09LZEW3 and a PDOF of 263 degrees. The combined direct and induced damage width was 152 cm (60 in) and the maximum crush depth was 44 cm (17.4 in) at C<sub>4</sub>.

After impact, both vehicles came to final rest on the raised concrete median facing south.

The driver of Vehicle 1 (case occupant) sustained minor injuries consisting of contusions and strains; maximum AIS = AIS-1. She was transported to a local hospital where she was treated and released. The right front seating position occupant sustained minor injuries consisting of abrasions and strains; maximum AIS = AIS-1. He was transported to a local hospital where he was treated and released.

The driver of Vehicle 2, according to police, sustained non-incapacitating injuries of unknown nature or severity. His course of treatment could not be determined.

Both vehicles were towed from the scene due to damage sustained in this collision.

*This document is disseminated under the sponsorship of the Department of Transportation in the interest of information exchange. The United States Government assumes no responsibility for the contents or use thereof.*

*The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the National Highway Traffic Safety Administration.*

*The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points be coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.*

*Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crash-worthiness performance of the involved vehicle(s) or their safety systems.*



**DYNAMIC SCIENCE, INC.**  
**ACCIDENT INVESTIGATION**  
**CASE NUMBER: DSI-93-AB-007**

**TABLE OF CONTENTS**

Accident Data.....	1
Ambience.....	1
Roadway.....	2
Traffic Controls.....	3
Vehicles.....	4
Vehicle Damage and Velocity Estimates.....	5
Collision Sequence.....	6
Occupant Kinematics.....	7
Airbag System.....	8
Emergency Rescue Response.....	11
Safety Standards.....	12
Occupant Data.....	13
Injuries.....	15
List of Abbreviations.....	17
Accident Schematic.....	19
Collision Measurement Table.....	20
Slide Index and Slides.....	21

**Appendices:**

- A. NASS Field Forms
- B. Police Accident Report
- C. Medical Record
- D. Vehicle Records and Owner Pictures

**ACCIDENT DATA:**

**Location:** [REDACTED], North Carolina  
**Area/Type:** Urban/Commercial  
**Date/Time:** Spring/Afternoon  
**Accident Type:** Car/Car - Right Angle

**Injury Severity:**

**Vehicle 1:** Driver (case occupant), AIS-1  
R/F Occupant, AIS-1  
**Vehicle 2:** Driver, reported non-incapacitating injuries of  
unknown nature or severity

**AMBIENCE:**

**Viewing Conditions:** Fair, restricted by rain and traffic mist  
**Cloud Cover:** Heavy  
**Precipitation:** Moderate to heavy rain  
**Temperature:** 21 to 24 ° C (70 to 75 ° F)  
**Road Surface:** Wet with standing water

**ROADWAY:**

	<b>VEHICLE 1</b>	<b>VEHICLE 2</b>
<b>Type:</b>	6-lane, divided with dedicated left turn lanes.	6-lane, divided with dedicated left turn lanes.
<b>Width:</b>	29.6 m (97.2 ft)	29.6 m (97.2 ft)
<b>Traffic Density:</b>	Moderate to heavy	Moderate to heavy
<b>Median:</b>	Raised concrete	Raised concrete
<b>Edge:</b>	1.5 m (5 ft) asphalt paved shoulder	1.2 m (4 ft) asphalt paved shoulder
<b>Surface:</b>	Asphalt paved	Asphalt paved
<b>Reported Defects:</b>	None	None
<b>Co-efficient of Friction (est.):</b>	.80 (wet)	.80 (wet)
<b>Vertical Alignment:</b>	Level	Level
<b>Horizontal Alignment:</b>	Straight	Straight

**Traffic Controls:**

	<b>VEHICLE 1</b>	<b>VEHICLE 2</b>
<b>Signals:</b>	None	None
<b>Signs:</b>	None	None
<b>Speed Limit:</b>	80 KPH (50 MPH)	80 KPH (50 MPH)
<b>Markings:</b>	Single, solid, white painted line separating shoulder from westbound travel lane 1. Single, broken, white painted line separating westbound travel lanes 1 and 2. Single, solid yellow painted line separating westbound travel lane 2 and raised concrete median. Standard solid, white painted railroad crossing warning in both westbound travel lanes.	Single, solid, white painted line separating shoulder from eastbound travel lane 1. Single, broken, white painted lines separating eastbound travel lanes 1, 2 and 3. Single, broken white painted line separating eastbound travel lane 3 and dedicated left turn lane.

**VEHICLES:**

	<b>VEHICLE 1</b>	<b>VEHICLE 2</b>
<b>Description:</b>	1990 Lincoln Town Car	1979 Ford Mustang II
<b>Odometer:</b>	123,827 km (76,959 mi)	179,748 km (111,714 mi)
<b>Engine:</b>	V8 / 5.0 L	L4 / 2.3L
<b>Vehicle Modifications:</b>	None	None
<b>Tire Condition:</b>	Good, approximately 40 percent of tread remained. No abnormal tread wear patterns.	Poor, less than 10 percent of tread remained. Tread wear patterns indicate faulty wheel alignment.
<b>Manual Restraints:</b>	3-point, manual lap/shoulder restraints at L/F, R/F, L/R and R/R seating positions. 2-point manual lap restraints at C/F and C/R seating positions.	3-point, manual lap/shoulder restraints at L/F, R/F seating positions. 2-point manual lap restraints at L/R, C/R and R/R seating positions.
<b>Automatic Restraints:</b>	Driver's and passenger's side airbag	None
<b>Reported Defects:</b>	None	None
<b>Cargo:</b>	None	None
<b>Windshield Damage:</b>	Cracked by left rear hood corner.	None
<b>Fleet:</b>	None	None
<b>Tow Status:</b>	Towed due to collision damage	Towed due to collision damage

**VEHICLE DAMAGE:**

	<b>VEHICLE 1</b>	<b>VEHICLE 2</b>
<b>Object Struck:</b>	Vehicle 2	Vehicle 1
<b>Event Number:</b>	1	1
<b>CDC:</b>	12FDEW1	09LZEW3
<b>Maximum Crush:</b>	32 cm (12.6 in) at C <sub>1</sub>	44 cm (17.4 in) at C <sub>4</sub>

**VEHICLE VELOCITY ESTIMATES:**

	<b>VEHICLE 1</b>	<b>VEHICLE 2</b>
<b>Impact Speed:</b> (estimated)	64-72 KPH (40-45 MPH)	56-64 KPH (35-40 MPH)
<b>Total Delta V:</b>	16.3 KPH (10.1 MPH)	25.8 KPH (16.1 MPH)
<b>Longitudinal Delta V:</b>	-16.0 KPH (-10.0 MPH)	-3.1 KPH (-2.0 MPH)
<b>Lateral Delta V:</b>	2.8 KPH (1.8 MPH)	25.6 KPH (15-9 MPH)
<b>Energy Dissipation:</b>	34,952.7 joules (25,776.4 ft-lb)	48,023.1 joules (35,415.3 ft-lb)

Calculations based upon: CRASH III PC, damage only routine.  
No other calculations due to lack of residual scene evidence.

**COLLISION SEQUENCE:**

**Pre-Crash:**

This two vehicle collision occurred during the afternoon hours of a spring weekday on an east/west six-lane, divided, asphalt paved, urban/commercial roadway in [REDACTED], North Carolina. The weather was cloudy, it was raining, the roadway was wet and there was standing water on the road surface. Viewing conditions were restricted by the moderate to heavy rainfall. Traffic density was moderate to heavy. The posted speed limit is 80 KPH (50 MPH).

The westbound road consists of a 1.5m (5 ft) asphalt paved shoulder separated from the north edge of westbound travel lane one by a single, solid, white painted line. Westbound travel lanes one and two are separated by single, broken, white painted lines. The south edge of travel lane two is separated from the yellow painted, raised concrete median by a single, solid, yellow painted line. In each westbound travel lane there is a white painted 2.4m x 4.9m (8 ft. x 16 ft.) railroad crossing warning applied to the road surface.

The eastbound roadway consists of a 1.2m (4 ft) asphalt paved shoulder separated from the south edge of eastbound travel lane one by a single, solid, white painted line. Eastbound travel lanes one, two and three are separated by single, broken, white painted lines. The north edge of eastbound travel lane three is separated from the dedicated left turn lane by single, broken, white painted lines and a yellow painted, raised concrete traffic channelizer. The north edge of the left turn lane is the yellow painted, raised concrete median.

Vehicle 1, a 1990 Lincoln Town Car, was being driven west in westbound travel lane two at a speed estimated to be between 64 and 72 KPH (40 and 45 MPH) by the 35 year old female driver (the case occupant), who was restrained by the available 3-point manual lap/shoulder safety restraint. Seated in the right front seating position was an 11 year old male who was restrained by the available 3-point manual lap/shoulder safety restraint.

Vehicle 2, a 1979 Ford Mustang three-door, was being driven east in eastbound travel lane two at a speed estimated to be between 72 and 80 KPH (45 and 50 MPH) by the 21 year old male driver who was not wearing the available 3-point manual lap/shoulder safety restraint.

While in the process of moving from eastbound travel lane two to eastbound travel lane three, the back wheels of Vehicle 2 lost traction on the wet roadway surface and the vehicle began a yaw to the right. The driver over-corrected and Vehicle 2 began a left side leading slide across

the eastbound left turn lane, the raised concrete median and into westbound travel lane two and the travel path of Vehicle 1.

As Vehicle 2 entered the travel path of Vehicle 1, the driver of Vehicle 1 steered right and braked in an effort to avoid Vehicle 2.

**Crash:**

The avoidance actions by the driver of Vehicle 1 were unsuccessful and the front plane of Vehicle 1 impacted the left rear side plane of Vehicle 2 in a right angle configuration. The Delta V for Vehicle 1 was computed, using CRASH III PC, as 16.3 KPH (10.1 MPH) using a CDC of 12FDEW1 and a PDOF of 350 degrees. The combined direct and induced damage width was 175 cm (69 in) and the maximum crush depth was 32 cm (12.6 in) at C<sub>1</sub>. The Delta V for Vehicle 2 in this impact was computed, using CRASH III PC, as 25.8 KPH (16.1 MPH) using a CDC of 09LZEW3 and a PDOF of 263 degrees. The combined direct and induced damage width was 152 cm (60 in) and the maximum crush depth was 44 cm (17.4 in) at C<sub>4</sub>.

The forces in this impact apparently equaled or exceeded the manufacturer's minimum threshold in the supplemental restraint system and the passenger side airbag deployed. However, the forces were apparently insufficient to trigger the driver's airbag and it DID NOT deploy.

**Post Crash:**

After impact, Vehicle 1 rotated approximately 105 degrees counter-clockwise and came to final rest facing south-southeast astraddle the raised concrete median approximately 15.2 m (50 ft) west of POI. Vehicle 2, which was astraddle the median at impact, did not rotate and came to final rest facing south approximately 9.8 m (32 ft) west of POI.

**Occupant Kinematics:**

The 35 year old female driver of Vehicle 1 was seated on a split bench seat with separate backs in a normal, upright position with her right foot on the brake pedal and her left foot on the floor/toe pan. Both hands were on the steering wheel rim at the 10:00 and 2:00 o'clock positions. The driver is 163 cm (64 in) in height and weighs 61 kg (135 lb).

During the on-site vehicle inspection the driver's six-way power seat was found to be adjusted to the full forward and full upward positions. The seat back was adjusted to a normal, upright configuration. During the interview with the driver, she confirmed that the seat was in its normal position for her when she was driving and had not been changed since the accident.



The driver of Vehicle 1 (the case occupant) was wearing the available manual lap/shoulder safety restraint in a normal manner - the shoulder restraint across the left shoulder and chest, and the lap restraint across the lower abdomen and upper thighs. At impact, the driver was projected forward, loading the shoulder restraint which resulted in a contusion of the lower right chest. Her head continued forward and downward resulting in a cervical strain. The driver's hips slid forward on the leather covered seat and she began to submarine the lap restraint which resulted in a contusion to the lower abdomen and strains to the muscles in the right hip and lower back.

In addition, as Vehicle 1 began the counter-clockwise rotation, the driver's head contacted the left front window glazing resulting in a contusion to the left jaw.

Occupant 2, sitting in the right front seating position, was wearing the available manual lap/shoulder restraints in a normal manner. The right front seat was adjusted to a point midway between the full forward and the center positions. The seat back was reclined approximately 5 degrees. This occupant is 147 cm (58 in) in height and weighs 39 kg (86 lb) and he had both feet on the right front floor pan. The position of his hands is unknown. At impact, Occupant 2 was projected forward loading the lap/shoulder restraints and as his head continued forward his face made contact with the passenger side airbag as it deployed. He sustained abrasions to his chin and lower lip from this contact. In addition, as his head continued forward as he loaded the safety restraints, he sustained a cervical strain.

**Airbag System:**

Vehicle 1 was a 1990 Lincoln Town Car equipped with a driver and passenger side airbag. At impact with Vehicle 2, the passenger side airbag deployed while the driver's side airbag did not. The owner of Vehicle 1 contends that if the passenger's airbag deploys so then should the driver's side airbag deploy. The owner further contends that the supplemental restraint system installed in his vehicle was defective.

During the on-site inspection by Dynamic Science, Inc. 22 days post accident and within 72 hours of notification, it was determined that the passenger side airbag was manufactured by TRW. Imprinted on the top side of the airbag, in red ink, was the number 002511 and a capital letter "I" over the number. The deployed airbag width measured 68.6 cm (27 in) from seam to seam and had an inflated volume of approximately .24 m<sup>3</sup> (8 ft<sup>3</sup>). Imprinted on the backside of the module trim cover were two codes - TRW91317C and CAV9. Also, during this initial inspection, the deployed airbag had four vertical fold creases, two at each edge of the airbag, near the edge seam stitching.

The airbag was vented by two ports located on each side of the bag near the instrument panel and away from the right front passenger. Each port measured approximately 4.8 cm (1.9 in) in diameter. The airbag did not appear to be tethered, and there was no evidence of occupant contact found on the airbag fabric.

During the initial vehicle inspection, the SRS light on the instrument panel flashed seven times when the ignition switch was turned on. Section 41-58, Restraint System - Supplemental Airbag, of the Ford Motor Company Repair Manual states on page 41-58-40 that seven flashes of the SRS light indicates that the "... passenger airbag circuit is inoperative." As the passenger side airbag had deployed, this appear to be a correct diagnosis.

At the completion of the field inspection of Vehicle 1, the vehicle was removed to a local Lincoln-Mercury services facility for a more complete diagnostic test and an in-depth inspection of the Supplemental Restraint System. These tests were monitored by this investigator, a representative of the Ford Motor Company, and the service facility manager. A Ford Motor Company engineer assisted in the various tests by telephone.

The Supplemental Restraint System was tested for voltage and resistance levels as were the individual components of the system. The results of each test were well within the manufacturer's specifications. At the completion of these various tests, each component was removed for a visual inspection and their condition, part numbers and serial numbers are listed below. All components, except the driver's side undeployed airbag module and the wiring harness, are submitted with this report.

- 1) Driver's side airbag module. - Not deployed  
Serial and part numbers: [REDACTED]

This component was re-attached to Vehicle 1 - the service facility refused to deploy the module for transport.

- 2) Passenger side airbag module. - Deployed  
Codes on airbag fabric: [REDACTED]  
Codes on module trim cover: [REDACTED]

Serial and part numbers: [REDACTED]

▽ [REDACTED]

Upper right corner of instrument panel, behind the module, was broken.

- 3) Right front sensor. - in R/F fender, no apparent damage.  
Serial and part numbers: [REDACTED]  
[REDACTED]
- 4) Center front sensor. - on hood latch support, no apparent damage.  
Serial and part numbers: [REDACTED]  
[REDACTED]
- 5) Left front sensor. - in L/F fender - mounting flanges are deformed.  
Serial and part numbers: [REDACTED]  
[REDACTED]
- 6) Rear sensor. - Left cowl side panel - no apparent damage.  
Serial and part numbers: [REDACTED]  
[REDACTED]
- 7) Diagnostic module - Behind center instrument panel - no apparent damage.  
Serial and part numbers: [REDACTED]  
[REDACTED] w/foam  
[REDACTED]
- 8) Timer Delay. - Behind center instrument panel - no apparent damage.  
Serial and part numbers: [REDACTED]  
[REDACTED]

While conducting the tests at the service facility, Vehicle 1 was placed on a vehicle lift and raised for an undercarriage inspection. This inspection revealed no scrapes, scratches or other damage that could be attributed to the events of the collision. The Energy Absorbing Devices (EADs) on the front bumper were inspected at this time. The right front EAD appeared to be at its normal extension and there was no evidence of compression. The left front EAD had "stroked" 2.5 cm (1.0 in) during the collision.

Based on vehicle inspection, reconstruction data, and interviews with engineers in the airbag industry and [REDACTED], the following information was developed:

- 1) the maximum crush for Vehicle 1 was 32 cm (12.6 in) at C<sub>1</sub>;
- 2) The Delta V for Vehicle 1 was 16.3 KPH (10.1 MPH);
- 3) The manufacturer's SRS threshold for the 1990 Lincoln Town Car is 13 to 23 KPH (8 to 14 MPH);
- 4) In early Lincoln Town Cars with double airbags, there was a higher impedance at the driver's side airbag module than at the passenger side airbag module and an approximately two millisecond overlap at the diagnostic module.

It would appear that, based upon the manufacturer's SRS threshold and the Delta V for Vehicle 1, the forces in this collision were marginal and that, coupled with the mismatched impedance of the two airbags, when the pulse was sent, only enough "trickled" through to activate and deploy the passenger side airbag. The pulse was not strong enough, or long enough, to overcome the stronger resistance in the driver's side airbag and it did not deploy.

It is this investigator's opinion that the Supplemental Restraint System in Vehicle 1 was not defective, and that it performed within design parameters.

**Scene Clearance:** The driver of Vehicle 1 (the case occupant) sustained minor injuries consisting of contusions and muscle strains; maximum AIS = AIS-1. She did not require assistance in exiting the vehicle, and was transported to a local hospital where she was treated and released. Occupant 2 sustained minor injuries consisting of abrasions and a muscle strain; maximum AIS = AIS-1. He did not require assistance in exiting the vehicle, and was transported to a local hospital where he was treated and released. No extrication procedures were required to gain access to the occupants of Vehicle 1.

The driver of Vehicle 2 would not cooperate with this investigation due to pending litigation. However, according to police officers, the driver sustained non-incapacitating injuries of unknown nature or severity. He was transported to a local hospital, but his course of treatment could not be determined.

Both Vehicle 1 and Vehicle 2 were towed from the scene due to damage sustained in this collision.

**Safety Standards:** There were no violations of Federal Motor Vehicle Safety Standards and Regulations found during the complete inspections of Vehicle 1 and Vehicle 2.

**Prior Vehicle Damage:**

Vehicle 1 had been involved in two prior accidents according to the owner. This was confirmed by a local body repair shop and the local Lincoln-Mercury service facility.

The first confirmed accident damage was in [REDACTED] 1992. Vehicle 1 sustained damage to the back bumper and the two back fenders when it was involved in a rear-end collision. Repair costs were approximately \$1,300 and included replacing the rear bumper and bumper facia. There were stress buckles to the right and left back fenders as a result of this collision that were not repaired.

The second confirmed collision occurred on or about [REDACTED] 1992. Vehicle 1 sustained damage to the left front that included the left front bumper, left front fender, hood, grille and headlight/side marker light assembly. The repair costs for this damage were \$2,262.55 and the repairs were completed in [REDACTED] 1993. In addition, the owner had the engine and drive train inspected for possible damage by the local Lincoln-Mercury service facility. No damage to the engine or drive train was found during the inspection.

The auto body repair shop manager stated in an interview that neither airbag deployed in the two prior accidents, and that he personally had inspected the vehicle's SRS components and had found no apparent damage. He further stated that he had not personally conducted any diagnostic tests to the SRS, but that the local Lincoln-Mercury service facility may have. The Lincoln-Mercury service facility had no record of any diagnostic test on the system after either of the accidents.

**DRIVER AND OTHER OCCUPANTS:**

**VEHICLE 1**

	<b>DRIVER</b>	<b>OCCUPANT 2</b>
<b>Age/Sex:</b>	35 year old/Female	11 year old/Male
<b>Seated Position:</b>	Left Front	Right Front
<b>Seat Type:</b>	Split bench	Split bench
<b>Height:</b>	163 cm (64 in)	147 cm (58 in)
<b>Weight:</b>	61 kg (135 lb)	39 kg. (86 lb)
<b>Occupation:</b>	Housewife	Student
<b>Pre-existing Medical Condition:</b>	None reported	None reported
<b>Alcohol/Drug Involvement:</b>	None	None
<b>Driving Experience:</b>	19 years	N/A
<b>Body Posture:</b>	Normal, upright seated position	Normal, upright seated position with back reclined approximately 5 degrees.
<b>Hand Position:</b>	Both hands on steering wheel rim at approximately the 10 and 2 o'clock positions	Unknown
<b>Foot Position:</b>	Right foot on brake, left foot on floor/toe pan	Both feet on floor pan
<b>Restraint Usage:</b>	3-point manual lap/shoulder restraint	3-point manual lap/shoulder restraint
<b>Additional Occupants:</b>	One	None

**DRIVER AND OTHER OCCUPANTS (con't):**

**VEHICLE 2**

**DRIVER**

<b>Age/Sex:</b>	21 year old/Male
<b>Seated Position:</b>	Left front
<b>Seat Type:</b>	Bucket
<b>Height:</b>	Refused
<b>Weight:</b>	Refused
<b>Occupation:</b>	Refused
<b>Pre-existing Medical Condition:</b>	None known
<b>Alcohol Involvement:</b>	None
<b>Driving Experience:</b>	Approximately 5 years
<b>Body Posture:</b>	Refused
<b>Hand Position:</b>	Refused
<b>Foot Position:</b>	Refused
<b>Restraint Usage:</b>	None
<b>Additional Occupants:</b>	None

**INJURIES:**

**Vehicle 1**

	<b><u>INJURY</u></b>	<b><u>OIC CODE</u></b>	<b><u>ICD-9</u></b>	<b><u>SOURCE</u></b>
<b>DRIVER:</b>	Contusion, Left Jaw	3290402.1,2	920	L. Side Window
	Cervical Strain	3640278.1,6	847.0	Inertial forces
	Lumbar Strain	3640678.1,8	847.2	Inertial forces
	Contusion, Lower R. Chest	7490402.1,1	922.1	Shoulder restraint
	Contusion, Lower Abdomen	7590402.1,4	922.2	Lap restraint
	Muscle Strain, R. Hip	3840602.1,1	843.9	Lap restraint
<b>R/F</b>				
<b>OCCUPANT:</b>	Abrasion, Chin	3290202.1,8	910	Airbag
	Abrasion, Lower lip	7290202.1,8	910	Airbag
	Cervical strain	3640278.1,6	847.0	Inertial forces



Dynamic Science, Inc.  
In-Depth Investigation  
Case Number: DSI-93-AB-007

**INJURIES:**

**Vehicle 2**

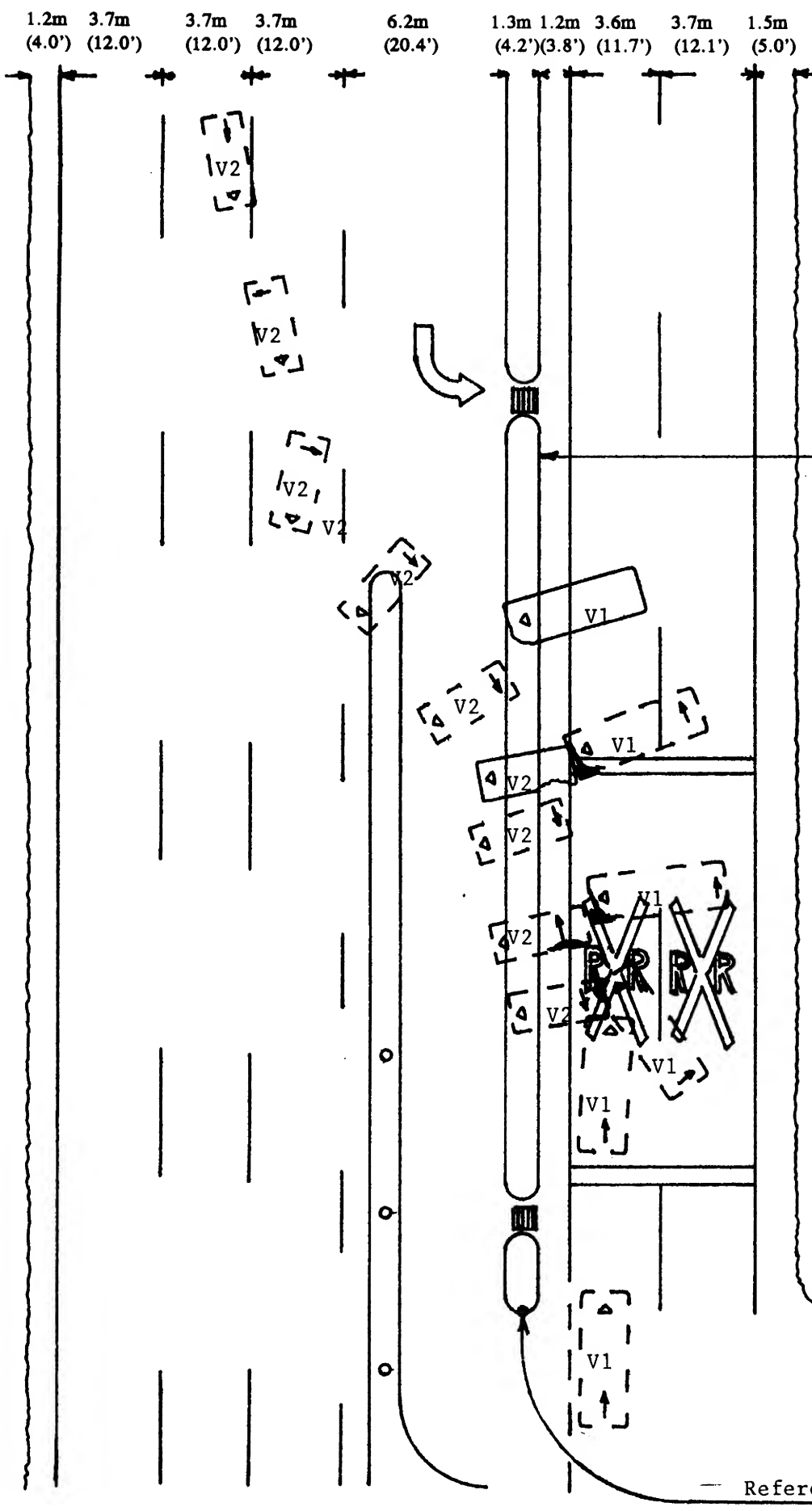
	<b><u>INJURY</u></b>	<b><u>OIC CODE</u></b>	<b><u>ICD-9</u></b>	<b><u>SOURCE</u></b>
<b>DRIVER:</b>	Reportedly sustained non-incapacitating injuries of unknown nature or severity, course of treatment could not be established.			

## **Abbreviations Used In Scene And Photographic Documentation**

'	Feet
"	Inches
AIS	Abbreviated Injury Scale
BLF	Begin Left Front
BLR	Begin Left Rear
BRF	Begin Right Front
BRR	Begin Right Rear
CBE	Cab Behind Engine
CCW	Counterclockwise
CDC	Collision Deformation Classification
CG	Center of Gravity
CM	Centimeter
COE	Cab Over Engine
CW	Clockwise
E, EB	East, Eastbound
ELF	End Left Front
ELR	End Left Rear
ERF	End Right Front
ERR	End Right Rear
FRP	Final Rest Position
I	Interstate Highway
IP	Intermediate Point
KG	Kilogram
KPH	Kilometers Per Hour
LF	Left Front
LR	Left Rear
M	Meter
N, NB	North, Northbound
NE	Northeast
NW	Northwest
PDOF	Principal Direction of Force
POI	Point of Impact
R	Radius of Curvature
RF	Right Front
RL	Reference Line
RP	Reference Point
RR	Right Rear
S, SB	South, Southbound
SE	Southeast
SW	Southwest
T	Time or Elapsed Time (in seconds)
U.S.	United States Highway
V1	Vehicle Number 1
W, WB	West, Westbound

**Body Contacts and Injury Table, Case DSI-93-AB-007**  
**35 Year Old Female; Left Front**  
**1990 Lincoln Town Car; Impact Plane: Frontal**  
**CDC = 12FDEW1; PDOF = 350°; Delta V = 16.3 KPH (10.1 MPH)**

<b><u>OIC/AIS CODE</u></b>	<b><u>ICD-9</u></b>	<b><u>INJURIES</u></b>	<b><u>CONTACT POINT</u></b>
3290402.1,2	920	Contusion, Left Jaw	L. Side Window
3640278.1,6	847.0	Cervical Strain	Inertial forces
3640678.1,8	847.2	Lumbar Strain	Inertial forces
7490402.1,1	922.1	Contusion, Lower R. Chest	Shoulder restraint
7590402.1,4	922.2	Contusion, Lower Abdomen	Lap restraint
3840602.1,1	843.9	Muscle Strain, R. Hip	Lap restraint



DYNAMIC SCIENCE  
 DSI-93-AB-007  
 1 cm = 2.4 m  
 1" = 20.0'

Not to scale, no  
 residual scene evidence



Reference Line

VEHICLES:

- V1 = 1990 Lincoln Town Car
- V2 = 1979 Ford Mustang II

## COLLISION MEASUREMENTS

**Case Number DSI-93-AB-007**

Reference Point: East Tip, raised median

Reference Line: North edge, raised median

DATA POINT	LONGITUDINAL S	LATERALS
North edge roadway	30.5m (100 ft) W	9.9m (32.6 ft) N
Single, white line, north edge westbound travel lane 1	30.5m (100 ft) W	8.4m (27.6 ft) N
Broken, white line, separates westbound travel lanes 1 and 2	30.5m (100 ft) W	4.7m (15.5 ft) N
Single, yellow line, south edge of westbound travel lane 2	30.5m (100 ft) W	1.2m (15.5 ft) N
North edge, raised median	30.5m (100 ft) W	0
South edge, raised median	30.5m (100 ft) W	1.3m (4.2 ft) S
North edge, turn lane channelizer	27.4m (90 ft) W	5.3m (17.5 ft) S
South edge, turn lane channelizer	27.4m (90 ft) W	6.6m (21.6 ft) S
Broken, white line, north edge eastbound travel lane 3	30.5m (100 ft) W	7.5m (24.6 ft) S
Broken, white line, separates eastbound travel lanes 2 and 3	30.5m (100 ft) W	11.2m (36.6 ft) S
Broken, white line, separates eastbound travel lanes 1 and 2	30.5m (100 ft) W	14.8m (48.6 ft) S
Single, white line, south edge eastbound travel lane 1	30.5m (100 ft) W	17.3m (56.6 ft) S
South edge of roadway	30.5m (100 ft) W	19.7m (64.6 ft) S
POI, Vehicles 1 and 2	11.6m (38.2 ft) W	2.6m (8.6 ft) N
FRP, Vehicle 1	26.0m (85.2 ft) W	.6m (2.1 ft) S
FRP, Vehicle 2	20.4m (66.8 ft) W	.6m (2.1 ft) S

## SLIDE INDEX

Case No. DSI-93-AB-007

PHOTO NO.	VEHICLE NO.	DIRECTION OF PICTURE	SUBJECT MATTER
1	Vehicle 1	east	Approach path, Vehicle 1
2-4	Vehicle 1	west	Travel path, Vehicle 1
5	Vehicle 1	west	POI, Vehicles 1 and 2
6	Vehicle 1	east	Reverse travel path, Vehicle 1 from POI
7-9	Vehicle 1	west	Travel path, Vehicle 1 POI to FRP
10	Vehicle 1	west	FRP, Vehicle 1
11	Vehicle 1	east	Reverse travel path, Vehicle 1 from FRP
12	Vehicle 2	west	Approach path, Vehicle 2
13-19	Vehicle 2	east	Travel path, Vehicle 2
20	Vehicle 2	east	POI, Vehicles 2 and 1
21	Vehicle 2	east	FRP, Vehicle 2
22-40	Vehicle 1	CCW	Exterior views, Vehicle 1
41-56	Vehicle 1	---	Interior views, Vehicle 1
57-58	Vehicle 1	---	R/F fender A/B sensor
59-60	Vehicle 2	---	Center A/B Sensor - hood latch
61-62	Vehicle 1	---	L/F fender A/B sensor
63-65	Vehicle 1	---	L/F kick panel A/B sensor
66	Vehicle 1	---	SRS light, after R/F A/B by-pass
67-72	Vehicle 1	---	Driver's side A/B module
73	Vehicle 1	---	By-pass loop for passenger side A/B
74-77	Vehicle 1	---	Passenger side A/B module
78	Vehicle 1	---	Timer delay module
79	Vehicle 1	---	Control module
80-94	Vehicle 2	CCW	Exterior views, Vehicle 2
95-113	Vehicle 2	---	Interior views, Vehicle 2



DS9307 #1



DS 9307 #2





DS9307 43



DS9307 #4



DS9307 #5



DS 9307 #6



DS 9307 #7



DS9307 #8



DS 9307 #9



DS9307 #10





DS9307 #11



DS9907 #12



DS9307 #13



DS9307 #14



DS9307 #15



DS9307 #16



DS9307 #17



DS9307 #18





DS9307 #19



DS9307 #20



DS9307 #21



DS9307 #22



D89307 #23  
Best Available



DS9307 #24



DS9307 #25



DS9307 #26





DS9307 #27



DS9307 #28



DS9307 #29



DS9307 #30



DS9307 #31



DS9307 #32



DS9307 #33



DS9307 #34





DS0307 #35



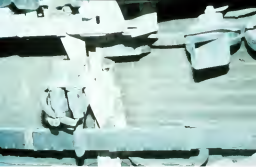
DS9307 #36  
Best Available



DS9307 #37  
Best Available



DS9307 #38



DS9307 #39



DS8307 #40



DS9307 #41



DS9307 #42





D89307 #43



DS9307 #44



DS8307 #45



DS9307 #46



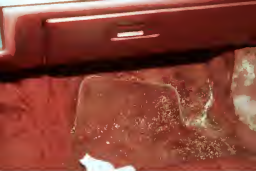
DS9307 #47



DS9307 #48



DS9307 #49



DS9307 #50





DS9307 #51



DS9307 #52



DS9307 #53



DS9307 #54



DS9307 #55



DS9307 #56



DS9307 #57



DS9307 #58





DS9307 #59



DS9307 #60



DS9307 #61



DS 9307 1052



DS9307 863



DS9307 #64



DS9307 #65



DS9307 #06





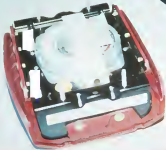
DS9307 #67



DS9307 #68



DS9307 #69



DS9307 #70



DS9307 #71



DS9307 #72



DS9307 #73

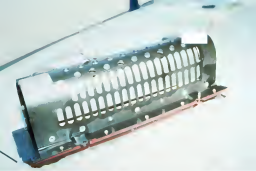


DS9307 #74





DS9307 #75



DS9307 #76



DS9307 #77



DS9307 #78



DS9307 #79



DS9307 #80

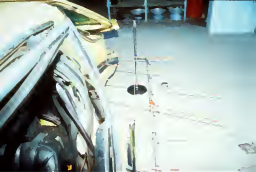


DS9307 #81



DS9307 #82





DS9307 #83  
Best Available



DS9307 #84



DS9307 #85  
Best Available



DS 9307 #86  
Best Available



DS9307 #87  
Best Available



DS9307 #88



DS9307 #89  
Best Available



DS9307 #90





DS9307 #91



DS9307 #92



DS9307 #93



DS9307 #94



DS9307 #95



DS9307 #98

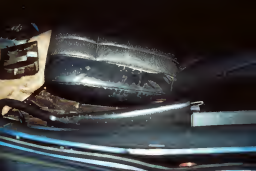


DS9307 #97



DS9307 #98





DS9307 #99



D89307 #100



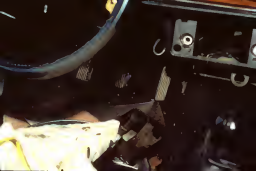
DS9307 #101



DS9307 #102



DS9307 #103



DS9307 #104



DS9307 #105



DS9307 #106





DS9307 #107



DS9307 #108



DS9307 #109



DS9307 #110



DS9307 #111



DS9307 #112



D89307 #113



## ACCIDENT FORM

<div style="border-bottom: 1px solid black; margin-bottom: 5px;">1. Primary Sampling Unit Number _____</div> <div style="border-bottom: 1px solid black; margin-bottom: 5px;">2. Case Number - Stratum <u>DSI-93-AB-007</u></div> <div style="text-align: center; background-color: black; color: white; padding: 2px; font-weight: bold;">IDENTIFICATION</div> <div style="border-bottom: 1px solid black; margin-bottom: 5px;">3. Number of General Vehicle Forms Submitted <u>0 2</u></div> <div style="border-bottom: 1px solid black; margin-bottom: 5px;">4. Date of Accident (Month, Day, Year) <u>SPRING / WEEKDAY / 9 3</u></div> <div style="border-bottom: 1px solid black; margin-bottom: 5px;">5. Time of Accident <u>AFTERNOON</u></div> <div style="margin-top: 5px;">Code reported military time of accident.</div> <div style="margin-top: 10px;">NOTE: Midnight = 2400 Unknown = 9999</div>				<div style="text-align: center; background-color: black; color: white; padding: 2px; font-weight: bold;">SPECIAL STUDIES - INDICATORS</div> <div style="margin-top: 5px;">Check (✓) each special study (SS14-SS18 below) that has been completed; code 1 for the checked special studies and 0 for the special studies not checked.</div> <div style="margin-top: 10px;">6. ____ SS14 Fatal AOPS <u>0</u></div> <div style="margin-top: 10px;">7. ____ SS15 Administrative Use <u>0</u></div> <div style="margin-top: 10px;">8. ____ SS16 _____ <u>0</u></div> <div style="margin-top: 10px;">9. ____ SS17 _____ <u>0</u></div> <div style="margin-top: 10px;">10. ____ SS18 _____ <u>0</u></div> <div style="text-align: center; background-color: black; color: white; padding: 2px; font-weight: bold;">NUMBER OF EVENTS</div> <div style="margin-top: 5px;">11. Number of Recorded Events in This Accident <u>0 1</u></div> <div style="margin-top: 10px;">Code the number of events which occurred in this accident.</div>			
ACCIDENT EVENTS							
For each event that occurred in the accident, code the lowest numbered vehicle in the left columns and the other involved vehicle or object on the right.							
Accident Event Sequence Number	Vehicle Number	Class Of Vehicle	General Area of Damage	Vehicle Number or Object Contacted	Class Of Vehicle	General Area of Damage	
12. <u>0 1</u>	13. <u>0 1</u>	14. <u>0 5</u>	15. <u>F</u>	16. <u>0 2</u>	17. <u>0 2</u>	18. <u>L</u>	
19. <u>0 2</u>	20. _____	21. _____	22. _____	23. _____	24. _____	25. _____	
26. <u>0 3</u>	27. _____	28. _____	29. _____	30. _____	31. _____	32. _____	
33. <u>0 4</u>	34. _____	35. _____	36. _____	37. _____	38. _____	39. _____	
40. <u>0 5</u>	41. _____	42. _____	43. _____	44. _____	45. _____	46. _____	
IF GREATER THAN FIVE EVENTS, CONTINUE CODING ON THE ACCIDENT EVENT SUPPLEMENT							



## CODES FOR CLASS OF VEHICLE

- (00) Not a motor vehicle
- (01) Subcompact/mini (wheelbase < 254 cm)
- (02) Compact (wheelbase ≥ 254 but < 265 cm)
- (03) Intermediate (wheelbase ≥ 265 but < 278 cm)
- (04) Full size (wheelbase ≥ 278 but < 291 cm)
- (05) Largest (wheelbase ≥ 291 cm)
- (09) Unknown passenger car size
- (11) Compact utility vehicle
- (12) Large utility vehicle (≤ 4,500 kgs GVWR)
- (13) Passenger van (≤ 4,500 kgs GVWR)
- (14) Other van (≤ 4,500 kgs GVWR)
- (15) Pickup truck (≤ 4,500 kgs GVWR)
- (18) Other truck (≤ 4,500 kgs GVWR)
- (19) Unknown light truck type
- (20) School bus
- (21) Other bus
- (22) Truck (> 4,500 kgs GVWR)
- (23) Tractor without trailer
- (24) Tractor-trailer(s)
- (25) Motored cycle
- (28) Other vehicle
- (99) Unknown

## CODES FOR GENERAL AREA OF DAMAGE (GAD)

### CDS APPLICABLE AND OTHER VEHICLES

- (O) Not a motor vehicle
- (N) Noncollision
- (F) Front
- (R) Right side
- (L) Left side
- (B) Back
- (T) Top
- (U) Undercarriage
- (9) Unknown

### TDC APPLICABLE VEHICLES

- (O) Not a motor vehicle
- (N) Noncollision
- (F) Front
- (R) Right side
- (L) Left side
- (B) Back of unit with cargo  
area (rear of trailer or  
straight truck)
- (D) Back (rear of tractor)
- (C) Rear of cab
- (V) Front of cargo area
- (T) Top
- (U) Undercarriage
- (9) Unknown

## CODES FOR VEHICLE NUMBER OR OBJECT CONTACTED

### (01-30) — Vehicle Number

#### Noncollision

- (31) Overturn — rollover
- (32) Fire or explosion
- (33) Jackknife
- (34) Other intraunit damage (specify):

(35) Noncollision injury

(38) Other noncollision (specify):

(39) Noncollision — details unknown

#### Collision With Fixed Object

- (41) Tree (≤ 10 cm in diameter)
- (42) Tree (> 10 cm in diameter)
- (43) Shrubbery or bush
- (44) Embankment

(45) Breakaway pole or post (any diameter)

#### Nonbreakaway Pole or Post

- (50) Pole or post (≤ 10 cm in diameter)
- (51) Pole or post (> 10 cm but ≤ 30 cm in  
diameter)
- (52) Pole or post (> 30 cm in diameter)
- (53) Pole or post (diameter unknown)

(54) Concrete traffic barrier

(55) Impact attenuator

(56) Other traffic barrier (includes guardrail)  
(specify):

(57) Fence

(58) Wall

(59) Building

(60) Ditch or culvert

(61) Ground

(62) Fire hydrant

(63) Curb

(64) Bridge

(68) Other fixed object (specify):

(69) Unknown fixed object

#### Collision with Nonfixed Object

(71) Motor vehicle not in-transport

(72) Pedestrian

(73) Cyclist or cycle

(74) Other nonmotorist or conveyance

(75) Vehicle occupant

(76) Animal

(77) Train

(78) Trailer, disconnected in transport

(88) Other nonfixed object (specify):

(89) Unknown nonfixed object

(98) Other event (specify):

(99) Unknown event or object



# GENERAL VEHICLE FORM

1. Primary Sampling Unit Number
2. Case Number - Stratum DSI-93-AB-007
3. Vehicle Number 01

## VEHICLE IDENTIFICATION

4. Vehicle Model Year 90  
Code the last two digits of the model year  
(99) Unknown
5. Vehicle Make (specify): LINCOLN  
Applicable codes are found in your  
NASS Data Collection, Coding and  
Editing Manual.  
(99) Unknown
6. Vehicle Model (specify): TOWN CAR  
Applicable codes are found in your  
NASS Data Collection, Coding and  
Editing Manual.  
(999) Unknown
7. Body Type 4  
Note: Applicable codes may be found on  
the back of this page.
8. Vehicle Identification Number  
1LNLMB1F5LY \* \* \* \* \*  
Left justify; Slash zeros and letter Z (0 and Z)  
No VIN—Code all zeros  
Unknown—Code all nine's

## OFFICIAL RECORDS

9. Police Reported Vehicle Disposition 1  
(0) Not towed due to vehicle damage  
(1) Towed due to vehicle damage  
(9) Unknown
10. Police Reported Travel Speed 72  
Code to the nearest kph (NOTE: 000 means  
less than 0.5 kph)  
(160) 159.5 kph and above  
(999) Unknown  
45 mph X 1.6093 = 72 kph

11. Police Reported Alcohol Presence 0  
(0) No alcohol present  
(1) Yes (alcohol present)  
(7) Not reported  
(8) No driver present  
(9) Unknown

Note: See variables 37 through 55  
(Page 4) for information on Other Drugs

12. Alcohol Test Result For Driver 96  
Code actual value (decimal implied  
before first digit—0.xx)  
(95) Test refused  
(96) None given  
(97) AC test performed, results unknown  
(98) No driver present  
(99) Unknown

Source: PAR

## ACCIDENT RELATED

13. Speed Limit 80  
(000) No statutory limit  
Code posted or statutory speed limit  
in kph  
(999) Unknown  
50 mph X 1.6093 = 80 kph
14. Attempted Avoidance Maneuver 9  
(00) No impact  
(01) No avoidance actions  
(02) Braking (no lockup)  
(03) Braking (lockup)  
(04) Braking (lockup unknown)  
(05) Releasing brakes  
(06) Steering left  
(07) Steering right  
(08) Braking and steering left  
(09) Braking and steering right  
(10) Accelerating  
(11) Accelerating and steering left  
(12) Accelerating and steering right  
(97) No driver present  
(98) Other action (specify):  
(99) Unknown
15. Accident Type 65  
Applicable codes may be found on the  
back of page two of this field form  
(00) No impact  
Code the number of the diagram that  
best describes the accident circumstance  
(98) Other accident type (specify):  
(99) Unknown

\*\*\*\* SKIP TO VARIABLE GV37 IF GV07 DOES NOT EQUAL 01-49 \*\*\*\*

# CODES FOR BODY TYPE

BEST AVAILABLE COPY

## CDS APPLICABLE VEHICLES

### Automobiles

- (01) Convertible (excludes sun-roof, t-bar)
- (02) 2-door sedan, hardtop, coupe
- (03) 3-door/2-door hatchback
- (04) 4-door sedan, hardtop
- (05) 5-door/4-door hatchback
- (06) Station wagon (excluding van and truck based)
- (07) Hatchback, number of doors unknown
- (08) Other automobile type (specify):

- (09) Unknown automobile type

### Automobile Derivatives

- (10) Auto based pickup (includes El Camino, Caballero, Ranchero, Brat, and Rabbit pickup)
- (11) Auto based panel (cargo station wagon, auto based ambulance/hearse)
- (12) Large limousine - more than four side doors or stretched chassis
- (13) Three-wheel automobile or automobile derivative

### Utility Vehicles ( $\leq 4,500$ kgs GVWR)

- (14) Compact utility (Jeep CJ-2 - CJ-7, Scrambler, Golden Eagle, Renegade, Laredo, Wrangler, Cherokee [84 and after], Dispatcher, Raider, Bronco II, Bronco [76 and before], Explorer, S-10 Blazer, Geo Tracker, Bravada, S-15 Jimmy, Thing, Pathfinder, Trooper, Trooper II, Rodeo, Amigo, Navajo, 4-Runner, Montero, Samurai, Sidekick, Rocky)
- (15) Large utility (includes Jeep Cherokee [83 and before], Ramcharger, Trailduster, Bronco-fullsize [78 and after], fullsize Blazer, fullsize Jimmy, Landcruiser, Rover, Scout)
- (16) Utility station wagon (Chevy Suburban, GMC Suburban, Travelall, Grand Wagoneer, includes suburban limousine)
- (19) Utility, unknown body type

### Van Based Light Trucks ( $\leq 4,500$ kgs GVWR)

- (20) Minivan (Chrysler Town and Country, Caravan, Grand Caravan, Voyager, Grand Voyager, Mini-Ram, Dodge/Plymouth Vista, Aerostar, Villager, Lumina APV, Trans Sport, Silhouette, Astro, Safari, Toyota Van, Toyota Minivan, Previa, Nissan Minivan, Quest, Mitsubishi Minivan, Vanagon/Camper.)
- (21) Large van (B150-B350, Sportsman, Royal, Maxiwagon, Ram, Tradesman, Voyager [83 and before], E150-E350, Econoline, Clubwagon, Chateau, G10-G30, Chevy Van, Beauville, Sport Van, G15-G35, Rally Van, Vandura.)
- (22) Step van or walk-in van ( $\leq 4,500$  kgs GVWR)
- (23) Van based motorhome ( $\leq 4,500$  kgs GVWR)
- (24) Van based school bus ( $\leq 4,500$  kgs GVWR)
- (25) Van based other bus ( $\leq 4,500$  kgs GVWR)
- (28) Other van type (Hi-Cube Van, Kary) (specify):

- (29) Unknown van type

### Light Conventional Trucks (Pickup style cab, $\leq 4,500$ kgs GVWR)

- (30) Compact pickup (D50, Colt P/U, Ram 50, Dakota, Arrow Pickup [foreign], Ranger, Courier, S-10, T-10, LUV, S-15, T-15, Sonoma, Datsun/Nissan Pickup, P'up, Mazda Pickup, Toyota Pickup, Mitsubishi Pickup)
- (31) Large Pickup (Jeep Pickup, Comanche, Ram Pickup, D100-D350, W100-W350, F100-F350, C10-C35, K10-K35, R10-R35, V10-V35, Silverado, Sierra, R100-R500.)

- (32) Pickup with slide-in camper
- (33) Convertible pickup
- (39) Unknown pickup style light conventional truck type

### Other Light Trucks ( $\leq 4,500$ kgs GVWR)

- (40) Cab chassis based (includes rescue vehicles, light stake, dump, and tow truck)
- (41) Truck based panel
- (42) Light truck based motorhome (chassis mounted)
- (45) Other light conventional truck type
- (48) Unknown light truck type
- (49) Unknown light vehicle type (automobile, utility, van, or light truck)

## OTHER VEHICLES

### Buses (Excludes Van Based)

- (50) School bus (designed to carry students, not cross country or transit)
- (58) Other bus type (e.g., transit, intercity, bus based motorhome) (specify):

- (59) Unknown bus type

### Medium/Heavy Trucks ( $> 4,500$ kgs GVWR)

- (60) Step van ( $> 4,500$  kgs GVWR)
- (61) Single unit straight truck ( $4,500$  kgs  $<$  GVWR  $\leq 8,850$  kgs)
- (62) Single unit straight truck ( $8,850$  kgs  $<$  GVWR  $\leq 12,000$  kgs)
- (63) Single unit straight truck ( $> 12,000$  kgs GVWR)
- (64) Single unit straight truck, GVWR unknown
- (65) Medium/heavy truck based motorhome
- (67) Truck-tractor with no cargo trailer
- (68) Truck-tractor pulling one trailer
- (69) Truck-tractor pulling two or more trailers
- (70) Truck-tractor (unknown if pulling trailer)
- (78) Unknown medium/heavy truck type
- (79) Unknown truck type (light/medium/heavy)

### Motored Cycles (Does Not Include All-Terrain Vehicles/Cycles)

- (80) Motorcycle
- (81) Moped (motorized bicycle)
- (82) Three-wheel motorcycle or moped
- (88) Other motored cycle (minibike, motorscooter) (specify):
- (89) Unknown motored cycle type

### Other Vehicles

- (90) ATV (All-Terrain Vehicle) and ATC (All-Terrain Cycle)
- (91) Snowmobile
- (92) Farm equipment other than trucks
- (93) Construction equipment other than trucks
- (97) Other vehicle type
- (99) Unknown body type

## 24. Rollover

- (0) No rollover (no overturning)

(1) Rollover, 1 quarter turn only

**(2) Rollover, 2 quarter turns**

**(3) Rollover, 3 quarter turns**

(4) Rollover, 4 or more quarter turns (specify):

**(5) Rollover--end-over-end (i.e., primarily about the lateral axis)**

(9) Rollover (overturn), details unknown

### **OVERRIDE/UNDERRIDE (THIS VEHICLE)**

- 25. Front Override/Underride (this Vehicle)**

- 26. Rear Override/Underride (this Vehicle)**

**(0) No override/underride, or not an end-to-end impact**

**Override (see specific CDC)**

(1) 1st CDC

(2) 2nd CDC

(3) Other not automated CDC (specify):

**Underride (see specific CDC)**

**(4) 1st CDC**

(5) 2nd CDC

(6) Other not automated CDC (specify):

**(7) Medium/heavy truck or bus override**

(9) Unknown

### HEADING ANGLE AT IMPACT FOR HIGHEST $\Delta V$

- Values: (000)-(359) Code actual value**

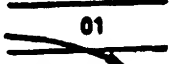





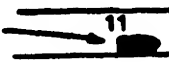


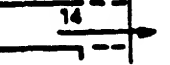
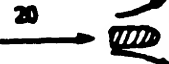
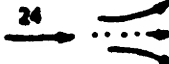
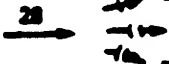




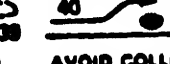
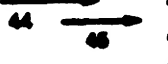

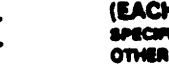












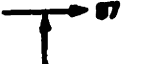

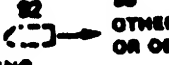
(997) Noncollision

(998) Impact with object

(999) Unknown

27. Heading Angle For This Vehicle 2 1 3

28. Heading Angle For Other Vehicle 1 7 3

Category	Configuration	ACCIDENT TYPES (Includes Intent)				
I Single Driver	A Right Roadside Departure	 01 DRIVE OFF ROAD	 02 CONTROL/ TRACTION LOSS	 03 AVOID COLLISION WITH VEH., PED., ANIM.	04 SPECIFICS OTHER	05 SPECIFICS UNKNOWN
	B Left Roadside Departure	 06 DRIVE OFF ROAD	 07 CONTROL/ TRACTION LOSS	 08 AVOID COLLISION WITH VEH., PED., ANIM.	09 SPECIFICS OTHER	10 SPECIFICS UNKNOWN
	C Forward Impact	 11 PARKED VEH.	 12 STA. OBJECT	 13 PEDESTRIAN/ ANIMAL	 14 END DEPARTURE	15 SPECIFICS OTHER 16 SPECIFICS UNKNOWN
II Same Trafficway Same Direction	D Rear-End	 20 STOPPED 21, 22, 23	 22 SLOWER 24, 25, 27	 26 DECEL. 28, 29, 31	 30 AVOID COLLISION WITH VEH.	(EACH - 32) SPECIFICS OTHER (EACH - 33) SPECIFICS UNKNOWN
	E Forward Impact	 34 CONTROL/ TRACTION LOSS	 36 CONTROL/ TRACTION LOSS	 38 AVOID COLLISION WITH VEH.	 40 AVOID COLLISION WITH OBJECT	(EACH - 42) SPECIFICS OTHER (EACH - 43) SPECIFICS UNKNOWN
	F Sideswipe Angle	 44 SIDESWIPE	 46 SIDESWIPE	 48 SIDESWIPE	(EACH - 48) SPECIFICS OTHER	(EACH - 49) SPECIFICS UNKNOWN
III Same Trafficway Opposite Direction	G Head-On	 50 LATERAL MOVE	(EACH - 52) SPECIFICS OTHER	(EACH - 53) SPECIFICS UNKNOWN		
	H Forward Impact	 54 CONTROL/ TRACTION LOSS	 56 CONTROL/ TRACTION LOSS	 58 AVOID COLLISION WITH VEH.	 60 AVOID COLLISION WITH OBJECT	(EACH - 62) SPECIFICS OTHER (EACH - 63) SPECIFICS UNKNOWN
	I Sideswipe Angle	 64 LATERAL MOVE	(EACH - 66) SPECIFICS OTHER	(EACH - 67) SPECIFICS UNKNOWN		
IV Change Trafficway Vehicle Turning	J. Turn Across Path	 68 INITIAL OPPOSITE DIRECTIONS	 71 INITIAL SAME DIRECTIONS	 73 TURN ACROSS PATH	(EACH - 74) SPECIFICS OTHER (EACH - 75) SPECIFICS UNKNOWN	
	K. Turn Into Path	 77 TURN INTO SAME DIRECTION	 79 TURN INTO OPPOSITE DIRECTIONS	 81 TURN INTO PATH	(EACH - 84) SPECIFICS OTHER (EACH - 85) SPECIFICS UNKNOWN	
V Intersecting Paths (Vehicle Damage)	L. Straight Paths	 87 STRAIGHT PATHS	 89 STRAIGHT PATHS	(EACH - 90) SPECIFICS OTHER	(EACH - 91) SPECIFICS UNKNOWN	
VI Miscellaneous	M. Backing Etc.	 92 BACKING VEH.	93 OTHER VEH. OR OBJECT	98 Other Accident Type 99 Unknown Accident Type 00 No Impact		

## 29. Basis for Total Delta V (highest)

1*Delta V Calculated*

- (1) CRASH program—damage only routine
- (2) CRASH program—damage and trajectory routine
- (3) Missing vehicle algorithm

*Delta V Not Calculated*

- (4) At least one vehicle (which may be this vehicle) is beyond the scope of an acceptable reconstruction program, regardless of collision conditions.
- (5) All vehicles within scope (CDC applicable) of CRASH program but one of the collision conditions is beyond the scope of the CRASH program or other acceptable reconstruction technique, regardless of adequacy of damage data.
- (6) All vehicle and collision conditions are within scope of one of the acceptable reconstruction programs, but there is insufficient data available.

**COMPUTER GENERATED DELTA V**

## 30. Total Delta V

Secondary Highest

0 1 616.3 Nearest kph

(16.1 mph)

(NOTE: 000 means less than  
0.5 kph)  
(160) 159.5 kph and above  
(999) Unknown

## 31. Longitudinal Component of Delta V

+  
0 1 6-16.0 Nearest kph

(-16.4 mph)

(NOTE: 000 means greater than  
-0.5 kph and less than +0.5 kph)  
(±160) ±159.5 kph and above  
(999) Unknown

Secondary

Highest

## 32. Lateral Component of Delta V

⊕  
- 0 32.8 Nearest kph

(1.8 mph)

(NOTE: 000 means greater than  
-0.5 kph and less than +0.5 kph)  
(±160) ±159.5 kph and above  
(999) Unknown

## 33. Energy Absorption

0 3 5 0 034952.7 Nearest 100 joules

(25776.4 ft-lb)

(NOTE: 0000 means less than 50 joules)  
(9997) 999,650 joules or more  
(9999) Unknown

## 34. Confidence In Reconstruction Program Results (For Highest Delta V)

1

- (0) No reconstruction
- (1) Collision fits model — results appear reasonable
- (2) Collision fits model — results appear high
- (3) Collision fits model — results appear low
- (4) Borderline reconstruction — results appear reasonable

## 35. Type of Vehicle Inspection

1

- (0) No inspection
- (1) Complete inspection
- (2) Partial inspection (specify):  
\_\_\_\_\_

## 36. Is this an AOPS Vehicle?

1

- (0) No
- (1) Yes - researcher determined
- (2) VIN determined air bag system
- (3) VIN determined automatic (passive) belts
- (4) VIN determined air bag and automatic (passive) belts

IS OLDMISS APPLICABLE FOR THIS VEHICLE? [ ] YES [X] NO

IF YES: IS A COMPLETED OLDMISS PROGRAM SUMMARY INCLUDED? [ ] YES [ ] NO

37. Police Reported Other Drug Presence    $\phi$   

- (0) No other drugs present
- (1) Yes (other drug present)
- (7) Not reported
- (8) No driver present
- (9) Unknown

**DRUG EVALUATION CLASSIFICATION**  
**OTHER DRUGS TEST RESULTS FOR DRIVER**

	DEC Test Results	Specimen Test Results
Narcotic Drug	40. <u>  <math>\phi</math>  </u>	41. <u>  <math>\phi</math>  </u>
Depressant Drug	42. <u>  <math>\phi</math>  </u>	43. <u>  <math>\phi</math>  </u>
Stimulant Drug	44. <u>  <math>\phi</math>  </u>	45. <u>  <math>\phi</math>  </u>
Hallucinogen Drug	46. <u>  <math>\phi</math>  </u>	47. <u>  <math>\phi</math>  </u>
Cannabinoid Drug	48. <u>  <math>\phi</math>  </u>	49. <u>  <math>\phi</math>  </u>
Phencyclidine (PCP)	50. <u>  <math>\phi</math>  </u>	51. <u>  <math>\phi</math>  </u>
Inhalant Drug	52. <u>  <math>\phi</math>  </u>	53. <u>  <math>\phi</math>  </u>
Other Drug (Excluding Nicotine, Aspirin, Alcohol, Drugs Administered Post-Crash)	54. <u>  <math>\phi</math>  </u>	55. <u>  <math>\phi</math>  </u>

## Codes For DEC Test Results

- (0) No DEC test given
- (1) Passed DEC test
- (2) Failed DEC test
- (3) DEC test given—results unknown
- (8) No driver present
- (9) Unknown if DEC test given

## Codes for Specimen Test Results

- (0) No specimen test given
- (1) Drug not found in specimen
- (2) Drug found in specimen
- (7) Specimen test given, results unknown or not obtained
- (8) No driver present
- (9) Unknown if specimen test given

38. Police Reported Drug Evaluation Classification (DEC) Test For Driver    $\phi$   

- (0) No DEC process available or given
- (1) DEC process given, results known
- (2) DEC process given, results unknown
- (3) DEC process available, unknown if given
- (8) No driver present

39. Other Drug Specimen Test Type For Driver    $\phi$   

- (0) No specimen test given
- (1) Blood test
- (2) Urine test
- (3) Other specimen tests (specify):  
\_\_\_\_\_
- (7) Unspecified specimen test
- (8) No driver present
- (9) Unknown if specimen test given

**OTHER DATA**56. Driver's Zip Code                     

- (00000) Driver not present  
(00001) Driver not a resident of U.S. or territories  
Code actual 5-digit zip code  
(99999) Unknown

57. Driver's Race/Ethnic Origin   1  

- (0) Driver not present  
(1) White (non-Hispanic)  
(2) Black (non-Hispanic)  
(3) White (Hispanic)  
(4) Black (Hispanic)  
(5) American Indian, Eskimo or Aleut  
(6) Asian or Pacific Islander  
(8) Other (specify): \_\_\_\_\_  
(9) Unknown

58. Vehicle Special Use (This Trip)   φ  

- (0) No special use  
(1) Taxi  
(2) Vehicle used as school bus  
(3) Vehicle used as other bus  
(4) Military  
(5) Police  
(6) Ambulance  
(7) Fire truck or car  
(8) Other (specify): \_\_\_\_\_  
(9) Unknown

**ROLLOVER DATA**

If GV07 (Body Type) ≠ 1-49, leave GV59-GV63 blank.  
If GV24 (Rollover) = 0, then GV59-GV63 must equal 0.  
If GV24 = 9, then GV59-GV63 must equal 9.

59. Rollover Initiation Type   φ  

- (0) No rollover  
(1) Trip-over  
(2) Flip-over  
(3) Turn-over  
(4) Climb-over  
(5) Fall-over  
(6) Bounce-over  
(7) Collision with another vehicle  
(8) Other rollover initiation type specify): \_\_\_\_\_  
(9) Unknown rollover initiation type

60. Location of Rollover Initiation   φ  

- (0) No rollover  
(1) On roadway  
(2) On shoulder—paved  
(3) On shoulder—unpaved  
(4) On roadside or divided trafficway median  
(9) Unknown

61. Rollover Initiation Object Contacted   φ     φ  62. Location on Vehicle Where Initial Principal Tripping Force Is Applied   φ  

- (0) No rollover  
(1) Wheels/tires  
(2) Side plane  
(3) End plane  
(4) Undercarriage  
(5) Other location on vehicle (specify): \_\_\_\_\_  
(8) Non-contact rollover forces (specify): \_\_\_\_\_  
(9) Unknown

63. Direction of Initial Roll   φ  

- (0) No rollover  
(1) Roll right - primarily about the longitudinal axis  
(2) Roll left - primarily about the longitudinal axis  
(5) End-over-end (i.e., primarily about the lateral axis)  
(9) Unknown roll direction

**PRECRASH DATA**64. Pre-Event Movement (Prior to Recognition of Critical Event)   φ     1  

- (01) Going straight  
(02) Slowing or stopping in traffic lane  
(03) Starting in traffic lane  
(04) Stopped in traffic lane  
(05) Passing or overtaking another vehicle  
(06) Disabled or parked in travel lane  
(07) Leaving a parking position  
(08) Entering a parking position  
(09) Turning right  
(10) Turning left  
(11) Making a U-turn  
(12) Backing up (other than for parking position)  
(13) Negotiating a curve  
(14) Changing lanes  
(15) Merging  
(16) Successful avoidance maneuver to a previous critical event  
(97) Other (specify): \_\_\_\_\_  
(98) No driver present  
(99) Unknown



## CODES FOR ROLLOVER INITIATION OBJECT CONTACTED

- (00) No rollover
- (01-30) — Vehicle Number

### Noncollision

- (31) Turn-over — fall-over
- (33) Jackknife

### Collision With Fixed Object

- (41) Tree ( $\leq 10$  cm in diameter)
- (42) Tree ( $> 10$  cm in diameter)
- (43) Shrubbery or bush
- (44) Embankment

- (45) Breakaway pole or post (any diameter)

### Nonbreakaway Pole or Post

- (50) Pole or post ( $\leq 10$  cm in diameter)
- (51) Pole or post ( $> 10$  cm but  $\leq 30$  cm in diameter)
- (52) Pole or post ( $> 30$  cm in diameter)
- (53) Pole or post (diameter unknown)

- (54) Concrete traffic barrier
- (55) Impact attenuator
- (56) Other traffic barrier (includes guardrail)  
(specify): \_\_\_\_\_

- (57) Fence
- (58) Wall
- (59) Building
- (60) Ditch or culvert
- (61) Ground
- (62) Fire hydrant
- (63) Curb
- (64) Bridge
- (68) Other fixed object (specify):  
\_\_\_\_\_

- (69) Unknown fixed object

### Collision with Nonfixed Object

- (71) Motor vehicle not in-transport
- (76) Animal
- (77) Train
- (78) Trailer, disconnected in transport
- (88) Other nonfixed object (specify):  
\_\_\_\_\_

- (89) Unknown nonfixed object

- (98) Other event (specify):  
\_\_\_\_\_

- (99) Unknown event or object

## PRECRASH DATA (Continued)

65. Critical Precrash Event 6 2*This Vehicle Loss of Control Due To:*

- (01) Blow out or flat tire
- (02) Stalled engine
- (03) Disabling vehicle failure (e.g., wheel fell off) (specify): \_\_\_\_\_
- (04) Non-disabling vehicle problem (e.g., hood flew up) (specify): \_\_\_\_\_
- (05) Poor road conditions (puddle, pot hole, ice, etc.) (specify): \_\_\_\_\_
- (06) Traveling too fast for conditions
- (08) Other cause of control loss (specify): \_\_\_\_\_
- (09) Unknown cause of control loss

*This Vehicle Traveling*

- (10) Over the lane line on left side of travel lane
- (11) Over the lane line on right side of travel lane
- (12) Off the edge of the road on the left side
- (13) Off the edge of the road on the right side
- (14) End departure
- (15) Turning left at intersection
- (16) Turning right at intersection
- (17) Crossing over (passing through) intersection
- (19) Unknown travel direction

*Other Motor Vehicle In Lane*

- (50) Stopped
- (51) Traveling in same direction with lower speed (i.e., lower steady speed or decelerating)
- (52) Traveling in same direction with higher speed
- (53) Traveling in opposite direction
- (54) In crossover
- (55) Backing
- (59) Unknown travel direction of other motor vehicle in lane

*Other Motor Vehicle Encroaching Into Lane*

- (60) From adjacent lane (same direction)—over left lane line
- (61) From adjacent lane (same direction)—over right lane line
- (62) From opposite direction—over left lane line
- (63) From opposite direction—over right lane line
- (64) From parking lane
- (65) From crossing street, turning into same direction
- (66) From crossing street, across path
- (67) From crossing street, turning into opposite direction
- (68) From crossing street, intended path not known
- (70) From driveway, turning into same direction
- (71) From driveway, across path
- (72) From driveway, turning into opposite direction
- (73) From driveway, intended path not known
- (74) From entrance to limited access highway
- (78) Encroachment by other vehicle—details unknown

*Pedestrian or Pedalcyclist, or Other Nonmotorist*

- (80) Pedestrian in roadway
- (81) Pedestrian approaching roadway
- (82) Pedestrian - unknown location
- (83) Pedalcyclist or other nonmotorist in roadway (specify): \_\_\_\_\_
- (84) Pedalcyclist or other nonmotorist approaching roadway (specify): \_\_\_\_\_
- (85) Pedalcyclist or other nonmotorist—unknown location (specify): \_\_\_\_\_

*Object or Animal*

- (87) Animal in roadway
- (88) Animal approaching roadway
- (89) Animal—unknown location
- (90) Object in roadway
- (91) Object approaching roadway
- (92) Object—unknown location

(98) Other critical precrash event (specify): \_\_\_\_\_

(99) Unknown

For Corrective Actions Attempted see variable GV14  
(Attempted Avoidance Maneuver)66. Precrash Stability After Avoidance Maneuver 2

- (0) No avoidance maneuver
- (1) Tracking
- (2) Skidding longitudinally—rotation less than 30 degrees
- (3) Skidding laterally—clockwise rotation
- (4) Skidding laterally—counterclockwise rotation
- (7) Other vehicle loss-of-control (specify): \_\_\_\_\_
- (8) No driver present
- (9) Precrash stability unknown

67. Precrash Directional Consequences of Avoidance Maneuver (Corrective Action) 1

- (0) No avoidance maneuver
- (1) Vehicle stayed in travel lane where avoidance maneuver was initiated
- (2) Vehicle stayed on roadway but left travel lane where avoidance maneuver was initiated
- (3) Vehicle stayed on roadway, not known if left travel lane where avoidance maneuver was initiated
- (4) Vehicle departed roadway
- (5) Avoidance maneuver initiated off roadway
- (8) No driver present
- (9) Directional consequences unknown

\*\*\* IF THE CDS APPLICABLE VEHICLE WAS NOT INSPECTED (I.E., GV35 = 0), \*\*\*  
DO NOT COMPLETE THE EXTERIOR AND INTERIOR VEHICLE FORMS.

\*\*\* IF GV07 DOES NOT EQUAL 01-49, DO NOT COMPLETE \*\*\*  
THE EXTERIOR VEHICLE, INTERIOR VEHICLE,  
OCCUPANT ASSESSMENT, AND OCCUPANT INJURY FORMS.



# EXTERIOR VEHICLE FORM

1. Primary Sampling Unit Number \_\_\_\_\_

3. Vehicle Number 01

2. Case Number - Stratum DSI-93-AB-007

## VEHICLE IDENTIFICATION

VIN 1 L N L M B 1 F 5 L Y \* \* \* \* \* Model Year 90

Vehicle Make (specify): LINCOLN Vehicle Model (specify): TOWN CAR

## LOCATOR

Locate the end of the damage with respect to the vehicle longitudinal center line or bumper corner for end impacts or an undamaged axle for side impacts.

Specific Impact No.	Location of Direct Damage	Location of Field L
<u>01</u>	<u>BEGINS LEFT FRONT BUMPER CORNER</u>	<u>FULL FRONTAL</u>

## CRUSH PROFILE IN CENTIMETERS

NOTES: Identify the plane at which the C-measurements are taken (e.g., at bumper, above bumper, at sill, above sill, etc.) and label adjustments (e.g., free space).

Measure and document on the vehicle diagram the location of maximum crush.

Measure C1 to C6 from driver to passenger side in front or rear impacts and rear to front in side impacts.

Free space value is defined as the distance between the baseline and the original body contour taken at the individual C locations. This may include the following: bumper lead, bumper taper, side protrusion, side taper, etc. Record the value for each C-measurement and maximum crush.

Use as many lines/columns as necessary to describe each damage profile.

Specific Impact Number	Plane of Impact C-Measurements	Direct Damage		Field L	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	C <sub>6</sub>	±D
		Width (CDC)	Max Crush								
<u>01</u>	<u>FRONT BUMPER</u>	<u>175</u>	<u>27</u>	<u>161</u>	<u>27</u>	<u>15</u>	<u>09</u>	<u>07</u>	<u>08</u>	<u>17</u>	<u>0</u>
	<u>+ FACIA TO BUMPER BEAM</u>		<u>13</u>		<u>13</u>	<u>12</u>	<u>11</u>	<u>0</u>	<u>0</u>	<u>0</u>	
	<u>TOTAL</u>		<u>40</u>		<u>40</u>	<u>27</u>	<u>20</u>	<u>07</u>	<u>08</u>	<u>17</u>	
	<u>- FREE SPACE</u>		<u>08</u>		<u>08</u>	<u>03</u>	<u>0</u>	<u>0</u>	<u>03</u>	<u>08</u>	
	<u>RESULTANT</u>		<u>32</u>		<u>32</u>	<u>24</u>	<u>20</u>	<u>07</u>	<u>05</u>	<u>09</u>	
			<u>@C<sub>1</sub></u>								
				<u>U.S. EQUIVALENT</u>							
<u>01</u>	<u>FRONT BUMPER</u>	<u>69.0 in</u>	<u>10.6 in</u>	<u>63.5 in</u>	<u>10.6 in</u>	<u>6.0 in</u>	<u>3.6 in</u>	<u>2.7 in</u>	<u>3.2 in</u>	<u>6.6 in</u>	<u>0</u>
	<u>+ FACIA TO BUMPER BEAM</u>		<u>5.0 in</u>		<u>5.0 in</u>	<u>4.7 in</u>	<u>4.4 in</u>	<u>0</u>	<u>0</u>	<u>0</u>	
	<u>TOTAL</u>		<u>15.6 in</u>		<u>15.6 in</u>	<u>10.7 in</u>	<u>8.0 in</u>	<u>2.7 in</u>	<u>3.2 in</u>	<u>6.6 in</u>	
	<u>- FREE SPACE</u>		<u>3.0 in</u>		<u>3.0 in</u>	<u>1.0 in</u>	<u>0</u>	<u>0</u>	<u>1.0 in</u>	<u>3.0 in</u>	
	<u>RESULTANT</u>		<u>12.6 in</u>		<u>12.6 in</u>	<u>9.7 in</u>	<u>8.0 in</u>	<u>2.7 in</u>	<u>2.2 in</u>	<u>3.6 in</u>	
			<u>@C<sub>1</sub></u>								

# ORIGINAL SPECIFICATIONS WORK SHEET

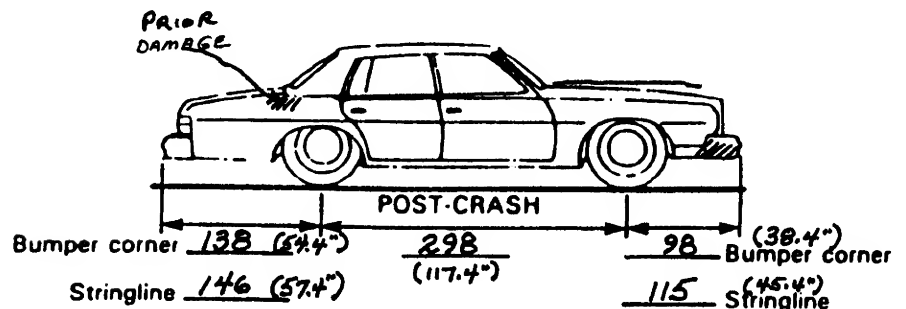
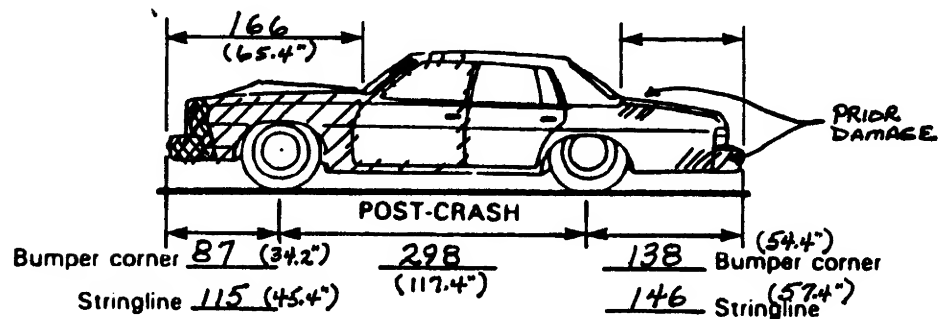
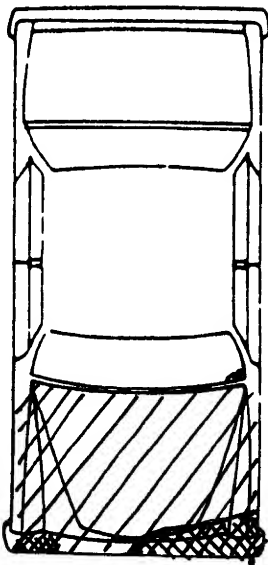
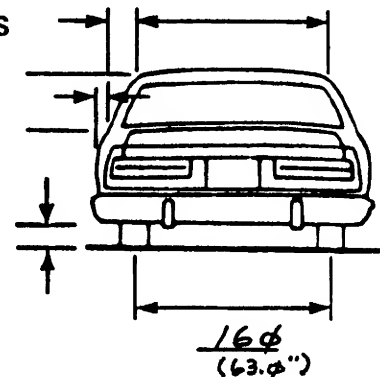
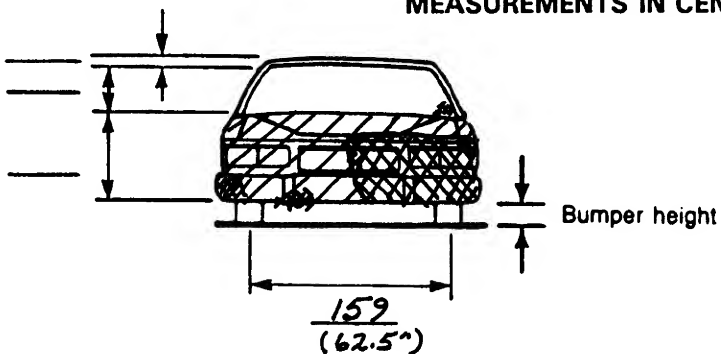
Wheelbase	<u>1</u> <u>1</u> <u>7.4</u> inches	x 2.54 =	<u>2</u> <u>9</u> <u>8</u> cm
Overall Length	<u>2</u> <u>2</u> <u>0.2</u> inches	x 2.54 =	<u>5</u> <u>5</u> <u>9</u> cm
Maximum Width	<u>0</u> <u>7</u> <u>8.1</u> inches	x 2.54 =	<u>1</u> <u>9</u> <u>8</u> cm
Curb Weight	<u>0</u> <u>4</u> , <u>0</u> <u>2</u> <u>5</u> pounds	x .4536 =	<u>1</u> , <u>8</u> <u>2</u> <u>6</u> kg
Average Track	<u>0</u> <u>6</u> <u>3.1</u> inches	x 2.54 =	<u>1</u> <u>6</u> <u>0</u> cm
Front Overhang	<u>0</u> <u>4</u> <u>5.1</u> inches	x 2.54 =	<u>1</u> <u>1</u> <u>5</u> cm
Rear Overhang	<u>0</u> <u>5</u> <u>7.7</u> inches	x 2.54 =	<u>1</u> <u>4</u> <u>7</u> cm
Undeformed End Width	<u>0</u> <u>6</u> <u>9.0</u> inches	x 2.54 =	<u>1</u> <u>7</u> <u>5</u> cm
Engine Size: cyl./displ.	<u>5</u> <u>0</u> <u>0</u> <u>0</u> cc	x .001 =	<u>5</u> . <u>0</u> L
	<u>3</u> <u>0</u> <u>5</u> CID	x .0164 =	<u>5</u> . <u>0</u> L

## VEHICLE DAMAGE SKETCH

<b>TIRE—WHEEL DAMAGE</b> a. Rotation physically restricted RF <u>2</u> LF <u>2</u> RR <u>2</u> LR <u>2</u> (1) Yes (2) No (8) NA (9) Unk.		<b>b. Tire deflated</b> RF <u>2</u> LF <u>2</u> RR <u>2</u> LR <u>2</u>		<b>ORIGINAL SPECIFICATIONS</b> Wheelbase <u>298</u> cm Overall Length <u>559</u> cm Maximum Width <u>198</u> cm Curb Weight <u>1826</u> kg Average Track <u>160</u> cm Front Overhang <u>115</u> cm Rear Overhang <u>147</u> cm Undeformed End Width <u>175</u> cm Engine Size: cyl./displ. <u>V8/5.0</u> L		<b>WHEEL STEER ANGLES</b> (For locked front wheels or displaced rear axles only) RF ± <u>—</u> ° LF ± <u>—</u> ° RR ± <u>—</u> ° LR ± <u>—</u> ° Within ± 5 degrees	
<b>TYPE OF TRANSMISSION</b> <input type="checkbox"/> Manual <input checked="" type="checkbox"/> Automatic				<b>DRIVE WHEELS</b> <input type="checkbox"/> FWD <input checked="" type="checkbox"/> RWD <input type="checkbox"/> 4WD			
				Approximate Cargo Weight <u>0</u> kg			

GAUGE STANDS AOL

MEASUREMENTS IN CENTIMETERS



NOTES: Sketch new perimeter and cross hatch direct damage and single hatch induced damage on all views. Annotate observations which might be useful in reconstructing the accident (e.g., grass in tire bead, direction of striations, scuff on sidewalls, etc.). If pulling trailer, sketch type of trailer and damage received on the back of CRASH.

Annotate any damage caused by extrication such as component removal by torching, prying, or hydraulic shears.

### CODES FOR OBJECT CONTACTED

(99) Unknown event or object

[illegible]

## COLLISION DEFORMATION CLASSIFICATION

## HIGHEST DELTA "V"

Accident Event Sequence Number	Object Contacted	(1) (2) Direction of Force	(3) Deformation Location	(4) Longitudinal or Lateral Location	(5) Vertical or Lateral Location	(6) Type of Damage Distribution	(7) Deformation Extent
4. <u>Ø 1</u>	5. <u>Ø 2</u>	6. <u>1 2</u>	7. <u>F</u>	8. <u>D</u>	9. <u>E</u>	10. <u>W</u>	11. <u>Ø 1</u>

## Second Highest Delta "V"

12. _____	13. _____	14. _____	15. _____	16. _____	17. _____	18. _____	19. _____
-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------

## CRUSH PROFILE IN CENTIMETERS

The crush profile for the damage described in the CDC(s) above should be documented in the appropriate space below. (ALL MEASUREMENTS ARE IN CENTIMETERS.)

## HIGHEST DELTA "V"

20. <u>L</u>	21. <u>C<sub>1</sub></u>	<u>C<sub>2</sub></u>	<u>C<sub>3</sub></u>	<u>C<sub>4</sub></u>	<u>C<sub>5</sub></u>	<u>C<sub>6</sub></u>	22. <u>±D</u>
<u>1 7 5</u> (69")	<u>Ø 3 2</u> (13")	<u>Ø 2 4</u> (14")	<u>Ø 2 Ø</u> (Ø 8")	<u>Ø Ø 7</u> (Ø 3")	<u>Ø Ø 5</u> (Ø 2")	<u>Ø Ø 9</u> (Ø 4")	<u>+ - Ø Ø Ø</u>

## Second Highest Delta "V"

23. <u>L</u>	24. <u>C<sub>1</sub></u>	<u>C<sub>2</sub></u>	<u>C<sub>3</sub></u>	<u>C<sub>4</sub></u>	<u>C<sub>5</sub></u>	<u>C<sub>6</sub></u>	25. <u>±D</u>
_____	_____	_____	_____	_____	_____	_____	<u>+ -</u>

26. Are CDCs Documented but Not Coded on The Automated File? Ø  
(0) No  
(1) Yes

27. Researcher's Assessment of Vehicle Disposition 1  
(0) Not towed due to vehicle damage  
(1) Towed due to vehicle damage  
(9) Unknown

28. Original Wheelbase 2 9 8  
Code to the nearest centimeter  
(999) Unknown

1 1 7 . 4 inches X 2.54 = 2 9 8 centimeters

29. Is This A Multi-Stage Manufactured Vehicle  
And/Or A Certified Altered Vehicle?

φ

- (0) No post manufacturer modifications  
(1) Yes - post manufacturer modifications  
(specify): \_\_\_\_\_

\_\_\_\_\_  
(Include photograph of CERTIFICATION  
PLACARD in case report)

- (9) Unknown if vehicle is modified

30. Fire Occurrence

φ

- (0) No fire

Yes, fire occurred

- (1) Minor  
(2) Major  
(9) Unknown

31. Origin of Fire

φ

- (0) No fire  
(1) Vehicle exterior (front, side, back, top)  
(2) Exhaust system  
(3) Fuel tank (and other fuel retention  
system parts)  
(4) Engine compartment  
(5) Cargo/trunk compartment  
(6) Instrument panel  
(7) Passenger compartment area  
(8) Other location (specify): \_\_\_\_\_

- (9) Unknown

32. Type of Fuel Tank

1

- (0) No fuel tank (electrical vehicle)  
(1) Metallic  
(2) Non-metallic  
(9) Unknown

\*\*\* STOP: IF THE CDS APPLICABLE VEHICLE WAS NOT TOWED AND WAS NOT AN AOPS \*\*\*  
(I.E., GV09 = 0 OR 9 AND GV36 = 0), DO NOT COMPLETE THE INTERIOR VEHICLE FORM.





## INTERIOR VEHICLE FORM

1. Primary Sampling Unit Number

2. Case Number - Stratum DSI-93-AB-0073. Vehicle Number 01

## INTEGRITY

4. Passenger Compartment Integrity 00

(00) No integrity loss

Yes, Integrity Was Lost Through

(01) Windshield

(02) Door (side)

(03) Door/hatch (back door)

(04) Roof

(05) Roof glass

(06) Side window

(07) Rear window (backlight)

(08) Roof and roof glass

(09) Windshield and door (side)

(10) Windshield and roof

(11) Side and rear window (side window and backlight)

(12) Windshield and side window

(13) Door and side window

(98) Other combination of above (specify):

(99) Unknown

## Door, Tailgate or Hatch Opening

5. LF 3 6. RF 1 7. LR 1 8. RR 1 9. TG/H 0

(0) No door/gate/hatch

(1) Door/gate/hatch remained closed and operational

(2) Door/gate/hatch came open during collision

(3) Door/gate/hatch jammed shut

(8) Other (specify):

(9) Unknown

## Damage/Failure Associated with Door, Tailgate or Hatch Opening in Collision. If IV05-IV09 ≠ 2, Then code 0

10. LF 0 11. RF 0 12. LR 0 13. RR 0 14. TG/H 0

(0) No door/gate/hatch or door not opened

Door, Tailgate or Hatch Came Open During Collision

(1) Door operational (no damage)

(2) Latch/striker failure due to damage

(3) Hinge failure due to damage

(4) Door structure failure due to damage

(5) Door support (i.e., pillar, sill, roof side rail, etc.) failure due to damage

(6) Latch/striker and hinge failure due to damage

(8) Other failure (specify):

(9) Unknown

## GLAZING

## Glazing Damage from Impact Forces

15. WS 2 16. LF 0 17. RF 0 18. LR 0 19. RR 020. BL 0 21. Roof 8 22. Other 0

(0) No glazing damage from impact forces

(2) Glazing in place and cracked from impact forces

(3) Glazing in place and holed from impact forces

(4) Glazing out-of-place (cracked or not) and not holed from impact forces

(5) Glazing out-of-place and holed from impact forces

(6) Glazing disintegrated from impact forces

(7) Glazing removed prior to accident

(8) No glazing

(9) Unknown if damaged

## Glazing Damage from Occupant Contact

23. WS 0 24. LF 0 25. RF 0 26. LR 0 27. RR 028. BL 0 29. Roof 0 30. Other 0

(0) No occupant contact to glazing or no glazing

(1) Glazing contacted by occupant but no glazing damage

(2) Glazing in place and cracked by occupant contact

(3) Glazing in place and holed by occupant contact

(4) Glazing out-of-place (cracked or not) by occupant contact and not holed by occupant contact

(5) Glazing out-of-place by occupant contact and holed by occupant contact

(6) Glazing disintegrated by occupant contact

(9) Unknown if contacted by occupant

If No Glazing Damage *And* No Occupant Contact or No Glazing, Then Code IV31 Through IV46 As 0

## Type of Window/Windshield Glazing

31. WS 1 32. LF 0 33. RF 0 34. LR 0 35. RR 036. BL 0 37. Roof 0 38. Other 0

(0) No glazing contact and no damage, or no glazing

(1) AS-1 — Laminated

(2) AS-2 — Tempered

(3) AS-3 — Tempered-tinted

(4) AS-14 — Glass/Plastic

(8) Other (specify):

(9) Unknown

## Window Precrash Glazing Status

39. WS 1 40. LF 0 41. RF 0 42. LR 0 43. RR 044. BL 0 45. Roof 0 46. Other 0

(0) No glazing contact and no damage, or no glazing

(1) Fixed

(2) Closed

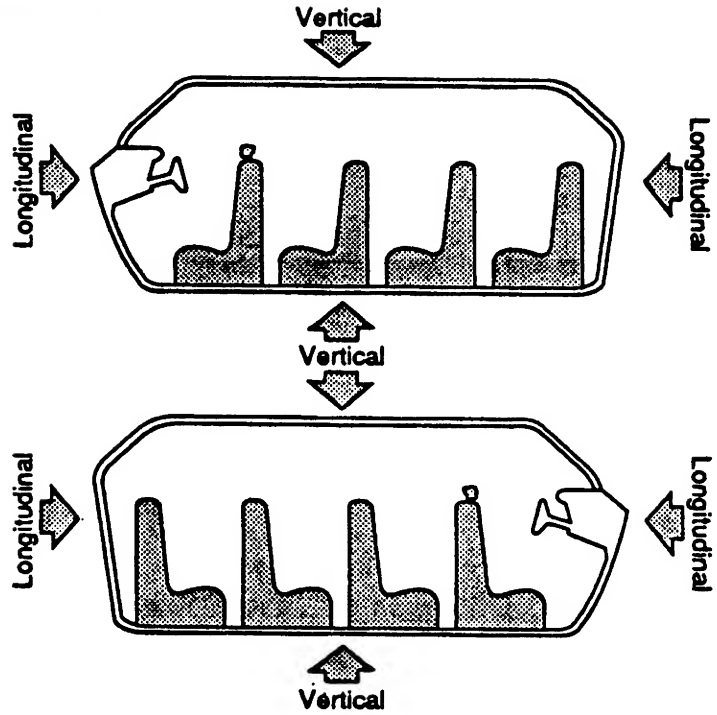
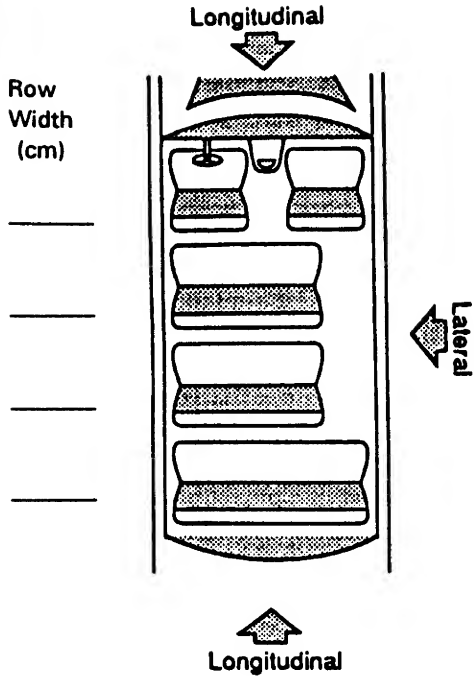
(3) Partially opened

(4) Fully opened

(9) Unknown

# INTRUSION WORKSHEET

Note: Sketch intruded areas



LOCATION OF INTRUSION	INTRUDED COMPONENT	(All Measurements Are In Centimeters)			INTRUSION	DOMINANT CRUSH DIRECTION
		COMPARISON VALUE	INTRUDED VALUE	=		
		—		=		
		—		=		
		—		=		
		—		=		
		—		=		
		—		=		
		—		=		
		—		=		
		—		=		
		—		=		
		—		=		
		—		=		
		—		=		
		—		=		
		—		=		
		—		=		

Document no more than the 15 most severe intrusions

## OCCUPANT AREA INTRUSION

Note: If no intrusions, leave variables IV47-IV86 blank.

## INTRUDING COMPONENT

*Interior Components*

- (01) Steering assembly
- (02) Instrument panel left
- (03) Instrument panel center
- (04) Instrument panel right
- (05) Toe pan
- (06) A (A1/A2)-pillar
- (07) B-pillar
- (08) C-pillar
- (09) D-pillar
- (10) Door panel (side)
- (12) Roof (or convertible top)
- (13) Roof side rail
- (14) Windshield
- (15) Windshield header
- (16) Window frame
- (17) Floor pan (includes sill)
- (18) Backlight header
- (19) Front seat back
- (20) Second seat back
- (21) Third seat back
- (22) Fourth seat back
- (23) Fifth seat back
- (24) Seat cushion
- (25) Back door/panel (e.g., tailgate)
- (26) Other interior component (specify):

- (27) Side panel - forward of the A (A2)-pillar
- (28) Side panel - rear of the A (A2)-pillar

*Exterior Components*

- (30) Hood
- (31) Outside surface of this vehicle (specify):
- (32) Other exterior object in the environment (specify):
- (33) Unknown exterior object
- (97) Catastrophic
- (98) Intrusion of unlisted component(s) (specify):
- (99) Unknown

## LOCATION OF INTRUSION

## Front Seat

- (11) Left
- (12) Middle
- (13) Right

## Fourth Seat

- (41) Left
- (42) Middle
- (43) Right

## Second Seat

- (21) Left
- (22) Middle
- (23) Right

- (97) Catastrophic
- (98) Other enclosed area (specify)

(99) Unknown

## Third Seat

- (31) Left
- (32) Middle
- (33) Right

## MAGNITUDE OF INTRUSION

- (1)  $\geq 3$  centimeters but  $< 8$  centimeters
- (2)  $\geq 8$  centimeters but  $< 15$  centimeters
- (3)  $\geq 15$  centimeters but  $< 30$  centimeters
- (4)  $\geq 30$  centimeters but  $< 46$  centimeters
- (5)  $\geq 46$  centimeters but  $< 61$  centimeters
- (6)  $\geq 61$  centimeters
- (7) Catastrophic
- (9) Unknown

## DOMINANT CRUSH DIRECTION

- (1) Vertical
- (2) Longitudinal
- (3) Lateral
- (7) Catastrophic
- (9) Unknown

# STEERING RIM/SPOKE DEFORMATION

(All Measurements Are in Centimeters)

COMPARISON VALUE

—

DAMAGE VALUE

=

DEFORMATION

—

=

—

=

—

=

—

=

**STEERING COLUMN**87. Steering Column Type 2

- (1) Fixed column  
 (2) Tilt column  
 (3) Telescoping column  
 (4) Tilt and telescoping column  
 (8) Other column type (specify):

(9) Unknown88. Blank X X

(This variable is left blank  
 so that numbering consistency  
 can be maintained with the  
 1988-93 CDS.

89. Blank X X X

(This variable is left blank  
 so that numbering consistency  
 can be maintained with the  
 1988-93 CDS.

90. Blank X X X

(This variable is left blank  
 so that numbering consistency  
 can be maintained with the  
 1988-93 CDS.

91. Blank X X X

(This variable is left blank  
 so that numbering consistency  
 can be maintained with the  
 1988-93 CDS.

92. Steering Rim/Spoke Deformation φ φ

- Code actual measured  
 deformation to the nearest centimeter  
 (00) No steering rim deformation  
 (01-14) Actual measured value in centimeters  
 (15) 15 centimeters or more  
 (98) Observed deformation cannot be measured  
 (99) Unknown

93. Location of Steering Rim/Spoke Deformation φ φ

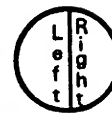
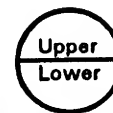
(00) No steering rim deformation

*Quarter Sections*

- (01) Section A  
 (02) Section B  
 (03) Section C  
 (04) Section D

*Half Sections*

- (05) Upper half of rim/spoke  
 (06) Lower half of rim/spoke  
 (07) Left half of rim/spoke  
 (08) Right half of rim/spoke



- (09) Complete steering wheel collapse  
 (10) Undetermined location  
 (99) Unknown

**INSTRUMENT PANEL**94. Odometer Reading 1 2 4,000

\_\_\_\_\_kilometers—Code to the  
 nearest 1,000 kilometers

- (000) No odometer  
 (001) Less than 1,500 kilometers  
 (500) 499,500 kilometers or more  
 (999) Unknown

φ 76 2 5 2 miles X 1.6093 = 1 2 3 8 2 7 kilometers

Source: INSPECTION95. Instrument Panel Damage from Occupant Contact? φ

- (0) No  
 (1) Yes  
 (9) Unknown

96. Knee Bolsters Deformed from Occupant Contact? 8

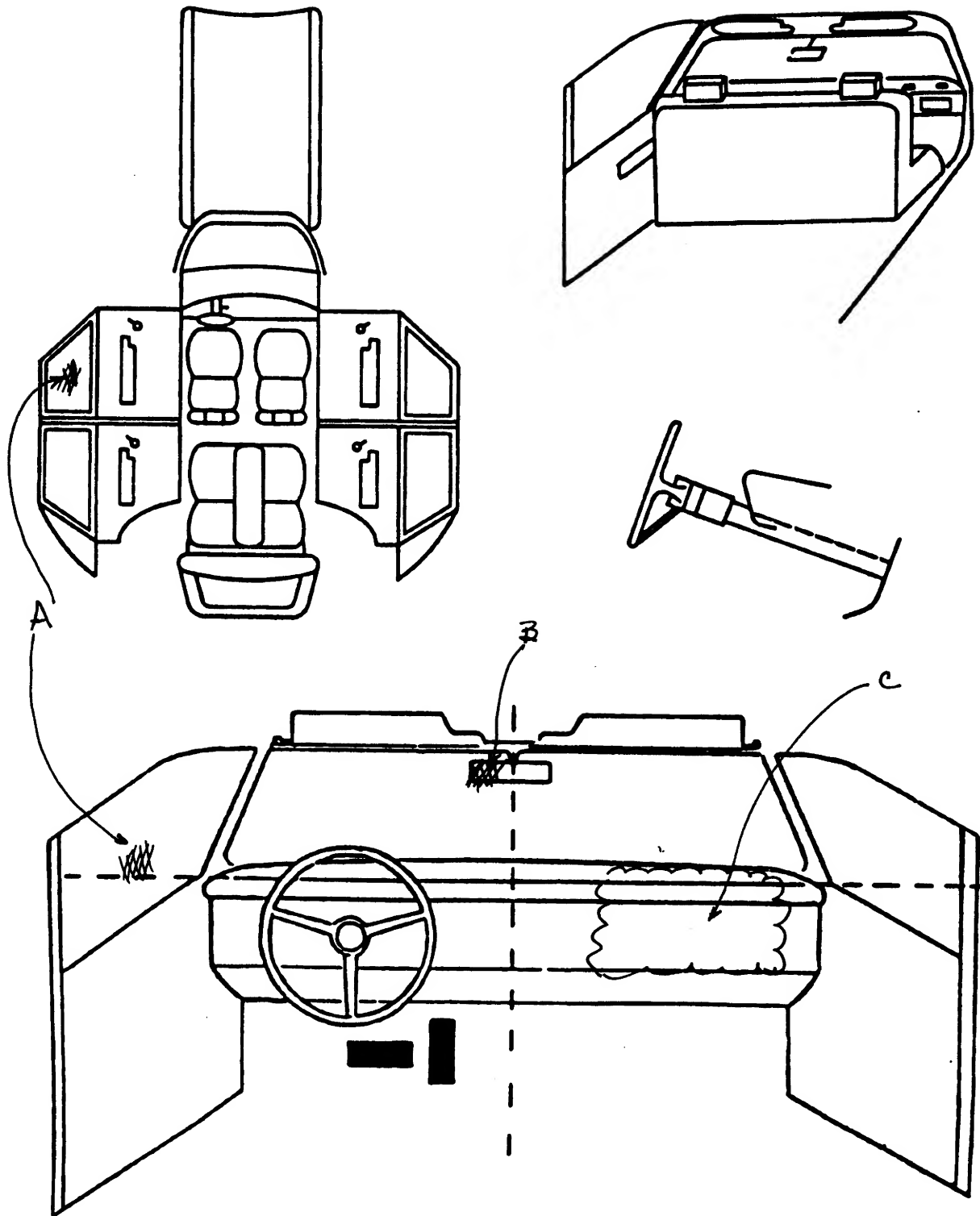
- (0) No  
 (1) Yes  
 (8) Not present  
 (9) Unknown

97. Did Glove Compartment Door Open During Collision(s)? φ

- (0) No  
 (1) Yes  
 (8) Not present  
 (9) Unknown

## VEHICLE INTERIOR SKETCHES

Note area of ejection/entrapment



Sketch windshield contact(s) and the damaged area(s) on the instrument panel outline (e.g., radio, glove compartment, damage to instrument panel structure).

Cross hatch contact points, draw spider webs or use other annotation as may be appropriate.

Annotate the contacted area with a letter (begin with A) and list on the Points of Occupant Contact page.

## POINTS OF OCCUPANT CONTACT

Contact	Interior Component Contacted	Occupant No. If Known	Body Region If Known	Supporting Physical Evidence	Confidence Level of Contact Point
A	25	01	HEAD	BODY OIL	1
B	02	01	R. HAND	BODY OIL / DISPLACED	1
C	45	02	FACE	PASS. SIDE AIRBAG DEPLOYED	1
D					
E					
F					
G					
H					
I					
J					
K					
L					
M					
N					

## CODES FOR INTERIOR COMPONENTS

## FRONT

- (01) Windshield
- (02) Mirror
- (03) Sunvisor
- (04) Steering wheel rim
- (05) Steering wheel hub/spoke
- (06) Steering wheel (combination of codes 04 and 05)
- (07) Steering column, transmission selector lever, other attachment
- (08) Add on equipment (e.g., CB, tape deck, air conditioner)
- (09) Left instrument panel and below
- (10) Center instrument panel and below
- (11) Right instrument panel and below
- (12) Glove compartment door
- (13) Knee bolster
- (14) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, mirror, or steering assembly (driver side only)
- (15) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, or mirror (passenger side only)
- (16) Driver side air bag compartment cover
- (17) Passenger side air bag compartment cover
- (18) Windshield reinforced by exterior object (specify): \_\_\_\_\_
- (19) Other front object (specify): \_\_\_\_\_

## LEFT SIDE

- (20) Left side interior surface, excluding hardware or armrests
- (21) Left side hardware or armrest
- (22) Left A (A1/A2)-pillar

- (23) Left B-pillar
- (24) Other left pillar (specify): \_\_\_\_\_
- (25) Left side window glass or frame
- (26) Left side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
- (27) Other left side object (specify): \_\_\_\_\_
- (28) Left side window sill

## RIGHT SIDE

- (30) Right side interior surface, excluding hardware or armrests
- (31) Right side hardware or armrest
- (32) Right A (A1/A2)-pillar
- (33) Right B-pillar
- (34) Other right pillar (specify): \_\_\_\_\_
- (35) Right side window glass or frame
- (36) Right side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B pillar, or roof side rail.
- (37) Other right side object (specify): \_\_\_\_\_
- (38) Right side window sill

## INTERIOR

- (40) Seat, back support
- (41) Belt restraint webbing/buckle
- (42) Belt restraint B-pillar attachment point
- (43) Other restraint system component (specify): \_\_\_\_\_
- (44) Head restraint system
- (45) Air bag (use codes "16" and "17" for injuries sustained from air bag compartment covers)

- (46) Other occupants (specify): \_\_\_\_\_

- (47) Interior loose objects
- (48) Child safety seat (specify): \_\_\_\_\_

- (49) Other interior object (specify): \_\_\_\_\_

## ROOF

- (50) Front header
- (51) Rear header
- (52) Roof left side rail
- (53) Roof right side rail
- (54) Roof or convertible top

## FLOOR

- (56) Floor (including toe pan)
- (57) Floor or console mounted transmission lever, including console
- (58) Parking brake handle
- (59) Foot controls including parking brake

## REAR

- (60) Backlight (rear window)
- (61) Backlight storage rack, door, etc.
- (62) Other rear object (specify): \_\_\_\_\_

## CONFIDENCE LEVEL OF CONTACT POINT

- (1) Certain
- (2) Probable
- (3) Possible
- (9) Unknown

## AUTOMATIC RESTRAINTS

**NOTES:** Encode the data for each applicable front seat position. The attribute for the variables may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

### AIR BAGS

		Left	Right
F I R S T	Availability/Function	1	1
	Deployment	4	1
	Failure	1	1

#### Air Bag System Availability/Function

- (0) Not equipped/not available  
(1) Air bag

*Non-functional*

- (2) Air bag disconnected (specify): \_\_\_\_\_

- (3) Air bag not reinstalled

- (9) Unknown

#### Air Bag System Deployment

- (0) Not equipped/not available

- (1) Air bag deployed during accident (as a result of impact)

- (2) Air bag deployed inadvertently just prior to accident

- (3) Air bag deployed, accident sequence undetermined

- (4) Nondeployed

- (5) Unknown if deployed

- (6) Air bag deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)

- (9) Unknown

#### Did Air Bag System Fail?

- (0) Not equipped/not available

- (1) No

- (2) Yes (specify): \_\_\_\_\_

- (9) Unknown

### AUTOMATIC BELTS

		Left	Right
F I R S T	Availability/Function	φ	φ
	Use	φ	φ
	Type	φ	φ
	Proper Use	φ	φ
	Failure Modes	φ	φ

#### Automatic (Passive) Belt System Availability/Function

- (0) Not equipped/not available  
(1) 2 point automatic belts  
(2) 3 point automatic belts  
(3) Automatic belts - type unknown

*Non-functional*

- (4) Automatic belts destroyed or rendered inoperative  
(9) Unknown

#### Automatic (Passive) Belt System Use

- (0) Not equipped/not available/destroyed or rendered inoperative  
(1) Automatic belt in use  
(2) Automatic belt not in use (manually disconnected, motorized track inoperative)  
(3) Automatic belt use unknown  
(9) Unknown

#### Automatic (Passive) Belt System Type

- (0) Not equipped/not available  
(1) Non-motorized system  
(2) Motorized system  
(9) Unknown

#### Proper Use of Automatic (Passive) Belt System

- (0) Not equipped/not available/not used  
(1) Automatic belt used properly  
(2) Automatic belt used properly with child safety seat

#### Automatic Belt Used Improperly

- (3) Automatic shoulder belt worn under arm  
(4) Automatic shoulder belt worn behind back  
(5) Automatic belt worn around more than one person  
(6) Lap portion of automatic belt worn on abdomen  
(7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify): \_\_\_\_\_  
(8) Other improper use of automatic belt system (specify): \_\_\_\_\_  
(9) Unknown

#### Automatic (Passive) Belt Failure Modes During Accident

- (0) Not equipped/not available/not in use  
(1) No automatic belt failure(s)  
(2) Torn webbing (stretched webbing not included)  
(3) Broken buckle or latchplate  
(4) Upper anchorage separated  
(5) Other anchorage separated (specify): \_\_\_\_\_  
(6) Broken retractor  
(7) Combination of above (specify): \_\_\_\_\_  
(8) Other automatic belt failure (specify): \_\_\_\_\_  
(9) Unknown



# MANUAL RESTRAINTS

NOTES: Encode the applicable data for **each seat position** in the vehicle. The attribute for the variable may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

If a Child safety seat is present, encode the data on the back of this page.

If the vehicle has automatic restraints available, encode the appropriate data on the back of the previous page.

		Left	Center	Right
F I R S T	Availability	4	3	4
	Use	φ 4	φ φ	φ 4
	Failure Modes	1	φ	1
S E C O N D	Availability	4	3	4
	Use	φ φ	φ φ	φ φ
	Failure Modes	φ	φ	φ
T H I R D	Availability			
	Use			
	Failure Modes			
O T H E R	Availability			
	Use			
	Failure Modes			

## Manual (Active) Belt System Availability

- (0) None available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available - type unknown

### Integral Belt Partially Destroyed

- (6) Shoulder belt (lap belt destroyed/removed)
- (7) Lap belt (shoulder belt destroyed/removed)

(8) Other belt (specify): \_\_\_\_\_

(9) Unknown

## Manual (Active) Belt System Use

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperable (specify): \_\_\_\_\_
- (02) Shoulder belt
- (03) Lap belt
- (04) Lap and shoulder belt
- (05) Belt used - type unknown

## (08) Other belt used (specify):

- (12) Shoulder belt used with child safety seat
- (13) Lap belt used with child safety seat
- (14) Lap and shoulder belt used with child safety seat
- (15) Belt used with child safety seat - type unknown
- (18) Other belt used with child safety seat (specify): \_\_\_\_\_
- (99) Unknown if belt used

## Manual (Active) Belt Failure Modes During Accident

- (0) No manual belt used or not available
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): \_\_\_\_\_
- (6) Broken retractor
- (7) Combination of above (specify): \_\_\_\_\_
- (8) Other manual belt failure (specify): \_\_\_\_\_
- (9) Unknown

## CHILD SAFETY SEAT FIELD ASSESSMENT

When a child safety seat is present enter the occupant's number in the first row and complete the column below the occupant's number using the codes listed below. Complete a column for each child safety seat present.

Occupant Number						
1. Type of Child Safety Seat						
2. Child Safety Seat Orientation						
3. Child Safety Seat Harness Usage				2		
4. Child Safety Seat Shield Usage						
5. Child Safety Seat Tether Usage						
6. Child Safety Seat Make/Model	Specify Below for Each Child Safety Seat					

### 1. Type of Child Safety Seat

- (0) No child safety seat
- (1) Infant seat
- (2) Toddler seat
- (3) Convertible seat
- (4) Booster seat
- (7) Other type child safety seat (specify):

- (8) Unknown child safety seat type
- (9) Unknown if child safety seat used

### 2. Child Safety Seat Orientation

- (00) No child safety seat

Designed for Rear Facing for This Age/Weight

- (01) Rear facing
- (02) Forward facing
- (08) Other orientation (specify):

- (09) Unknown orientation

Designed for Forward Facing for This Age/Weight

- (11) Rear facing
- (12) Forward facing
- (18) Other orientation (specify):

- (19) Unknown orientation

Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight

- (21) Rear facing
- (22) Forward facing
- (28) Other orientation (specify):

- (29) Unknown orientation

- (99) Unknown if child safety seat used

### 3. Child Safety Seat Harness Usage

### 4. Child Safety Seat Shield Usage

### 5. Child Safety Seat Tether Usage

Note: Options Below Are Used for Variables 3-5.

- (00) No child safety seat

Not Designed with Harness/Shield/Tether

- (01) After market harness/shield/tether added, not used
- (02) After market harness/shield/tether used
- (03) Child safety seat used, but no after market harness/shield/tether added
- (09) Unknown if harness/shield/tether added or used

Designed With Harness/Shield/Tether

- (11) Harness/shield/tether not used
- (12) Harness/shield/tether used
- (19) Unknown if harness/shield/tether used

Unknown If Designed With Harness/Shield/Tether

- (21) Harness/shield/tether not used
- (22) Harness/shield/tether used
- (29) Unknown if harness/shield/tether used

- (99) Unknown if child safety seat used

### 6. Child Safety Seat Make/Model

(Specify make/model and occupant number)

---



---



---



---

**HEAD RESTRAINTS/SEAT EVALUATION**

NOTES: Encode the applicable data for each seat position in the vehicle. The attribute for these variables may be found at the bottom of the page. Head restraint type/damage and seat type/performance should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

		Left	Center	Right
FIRST	Head Restraint Type/Damage	3	φ	3
	Seat Type	φ6	φ6	φ6
	Seat Performance	1	1	1
	Seat Orientation	1	1	1
SECOND	Head Restraint Type/Damage	φ	φ	φ
	Seat Type	φ3	φ3	φ3
	Seat Performance	1	1	1
	Seat Orientation	1	1	1
THIRD	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			
	Seat Orientation			
OTHER	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			
	Seat Orientation			

**Head Restraint Type/Damage by Occupant at This Occupant Position**

- (0) No head restraints
- (1) Integral — no damage
- (2) Integral — damaged during accident
- (3) Adjustable — no damage
- (4) Adjustable — damaged during accident
- (5) Add-on — no damage
- (6) Add-on — damaged during accident
- (8) Other Specify: \_\_\_\_\_

(9) Unknown

**Seat Type (this Occupant Position)**

- (00) Occupant not seated or no seat
- (01) Bucket
- (02) Bucket with folding back
- (03) Bench
- (04) Bench with separate back cushions
- (05) Bench with folding back(s)
- (06) Split bench with separate back cushions
- (07) Split bench with folding back(s)
- (08) Pedestal (i.e., column supported)
- (09) Other seat type (specify): \_\_\_\_\_

(10) Box mounted seat (i.e., van type)

(99) Unknown

**Seat Performance (this Occupant Position)**

- (0) Occupant not seated or no seat
- (1) No seat performance failure(s)
- (2) Seat adjusters failed
- (3) Seat back folding locks or "seat back" failed specify: \_\_\_\_\_
- (4) Seat tracks/anchors failed
- (5) Deformed by impact of occupant
- (6) Deformed by passenger compartment intrusion (specify): \_\_\_\_\_

(7) Combination of above (specify): \_\_\_\_\_

(8) Other (specify): \_\_\_\_\_

(9) Unknown

**Seat Orientation (this Occupant Position)**

- (0) Occupant not seated or no seat
- (1) Forward facing seat
- (2) Rear facing seat
- (3) Side facing seat (inward)
- (4) Side facing seat (outward)
- (8) Other (specify): \_\_\_\_\_

(9) Unknown

**DESCRIBE ANY INDICATION OF ABNORMAL OCCUPANT POSTURE (I.E., UNUSUAL OCCUPANT CONTACT PATTERN)**

**EJECTION/ENTRAPMENT DATA**

Complete the following if the researcher has any indication that an occupant was either ejected from or entrapped in the vehicle. Code the appropriate data on the Occupant Assessment Form.

**EJECTION** No [☒] Yes [ ]

Describe indications of ejection and body parts involved in partial ejection(s):

---



---



---



---

Occupant Number						
Ejection						
(Note on Vehicle Interior Sketch) Ejection Area						
Ejection Medium						
Medium Status						

**Ejection**

- (1) Complete ejection  
(2) Partial ejection  
(3) Ejection, Unknown degree  
(9) Unknown

**Ejection Area**

- (1) Windshield  
(2) Left front  
(3) Right front  
(4) Left rear  
(5) Right rear  
(6) Rear

**(7) Roof**

- (8) Other area (e.g., back of pickup, etc.) (specify):  
\_\_\_\_\_

**(9) Unknown****Ejection Medium**

- (1) Door/hatch/tailgate  
(2) Nonfixed roof structure  
(3) Fixed glazing  
(4) Nonfixed glazing (specify):  
\_\_\_\_\_

**(5) Integral structure**

- (8) Other medium (specify):  
\_\_\_\_\_

**(9) Unknown****Medium Status (Immediately Prior to Impact)**

- (1) Open  
(2) Closed  
(3) Integral structure  
(9) Unknown

**ENTRAPMENT** No [☒] Yes [ ]

Describe entrapment mechanism: \_\_\_\_\_

---



---



---



---

Component(s): \_\_\_\_\_

---

(Note in vehicle interior diagram)



## OCCUPANT ASSESSMENT FORM

## OCCUPANT'S SEATING

1. Primary Sampling Unit Number           2. Case Number - Stratum DST-93-AB-0073. Vehicle Number 014. Occupant Number 01

## OCCUPANT'S CHARACTERISTICS

5. Occupant's Age 35

Code actual age at time of accident.

(00) Less than one year old (specify by month):

(97) 97 years and older

(99) Unknown

6. Occupant's Sex 2

(1) Male

(2) Female

(9) Unknown

7. Occupant's Height 163Code actual height to the nearest  
centimeter.

(999) Unknown

64 inches X 2.54 = 163 centimeters8. Occupant's Weight 061Code actual weight to the nearest  
kilogram.

(999) Unknown

135 pounds X .4536 = 061 kilograms9. Occupant's Role 1

(1) Driver

(2) Passenger

(9) Unknown

10. Occupant's Seat Position 11

Front Seat

(11) Left side

(12) Middle

(13) Right side

(14) Other (specify):

(15) On or in the lap of another occupant

Second Seat

(21) Left side

(22) Middle

(23) Right side

(24) Other (specify):

(25) On or in the lap of another occupant

Third Seat

(31) Left side

(32) Middle

(33) Right side

(34) Other (specify):

(35) On or in the lap of another occupant

Fourth Seat

(41) Left side

(42) Middle

(43) Right side

(44) Other (specify):

(45) On or in the lap of another occupant

(97) In or on unenclosed area

(98) Other seat (specify):

(99) Unknown

11. Occupant's Posture 0

(0) Normal posture

Abnormal posture

(1) Kneeling or standing on seat

(2) Lying on or across seat

(3) Kneeling, standing or sitting in front of seat

(4) Sitting sideways or turned to talk with another  
occupant or to look out a rear window

(5) Sitting on a console

(6) Lying back in a reclined seat position

(7) Bracing with feet or hands on a surface in front  
of seat

(8) Other abnormal posture (specify):

(9) Unknown

## EJECTION/ENTRAPMENT

12. Ejection φ

- (0) No ejection
- (1) Complete ejection
- (2) Partial ejection
- (3) Ejection, unknown degree
- (9) Unknown

13. Ejection Area φ

- (0) No ejection
- (1) Windshield
- (2) Left front
- (3) Right front
- (4) Left rear
- (5) Right rear
- (6) Rear
- (7) Roof
- (8) Other area (e.g., back of pickup, etc.)  
(specify): \_\_\_\_\_
- (9) Unknown

14. Ejection Medium φ

- (0) No ejection
- (1) Door/hatch/tailgate
- (2) Nonfixed roof structure
- (3) Fixed glazing
- (4) Nonfixed glazing (specify): \_\_\_\_\_
- (5) Integral structure
- (8) Other medium (specify): \_\_\_\_\_
- (9) Unknown

15. Medium Status (Immediately Prior To Impact) φ

- (0) No ejection
- (1) Open
- (2) Closed
- (3) Integral structure
- (9) Unknown

16. Entrapment φ

(NOTE: Entrapped means that part of the person was in the vehicle and mechanically restrained; jammed doors and immobilizing injuries by themselves are not sufficient to constitute entrapment.)

- (0) Not entrapped
- (1) Entrapped
- (9) Unknown

## RESTRAINT SYSTEM EVALUATION

17. Manual (Active) Belt System Availability 4

- (0) None available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available—type unknown

*Integral Belt Partially Destroyed*

- (6) Shoulder belt (lap belt destroyed/removed)
- (7) Lap belt (shoulder belt destroyed/removed)

(8) Other belt (specify): \_\_\_\_\_

(9) Unknown \_\_\_\_\_

18. Manual (Active) Belt System Use 4

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperative (specify): \_\_\_\_\_

(02) Shoulder belt \_\_\_\_\_

(03) Lap belt \_\_\_\_\_

(04) Lap and shoulder belt \_\_\_\_\_

(05) Belt used—type unknown \_\_\_\_\_

(08) Other belt used (specify): \_\_\_\_\_

(12) Shoulder belt used with child safety seat \_\_\_\_\_

(13) Lap belt used with child safety seat \_\_\_\_\_

(14) Lap and shoulder belt used with child safety seat \_\_\_\_\_

(15) Belt used with child safety seat—type unknown \_\_\_\_\_

(18) Other belt used with child safety seat (specify): \_\_\_\_\_

(99) Unknown if belt used \_\_\_\_\_

19. Proper Use of Manual (Active) Belts 1

- (0) None used or not available
- (1) Belt used properly
- (2) Belt used properly with child safety seat

*Belt Used Improperly*

- (3) Shoulder belt worn under arm
- (4) Shoulder belt worn behind back or seat
- (5) Belt worn around more than one person
- (6) Lap belt worn on abdomen
- (7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify): \_\_\_\_\_

(8) Other improper use of manual belt system (specify): \_\_\_\_\_

(9) Unknown \_\_\_\_\_

20. Manual (Active) Belt Failure Modes During Accident 1

- (0) No manual belt used
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): \_\_\_\_\_

(6) Broken retractor \_\_\_\_\_

(7) Combination of above (specify): \_\_\_\_\_

(8) Other manual belt failure (specify): \_\_\_\_\_

(9) Unknown \_\_\_\_\_

21. Air Bag System Availability/Function 1

- (0) Not equipped/not available
- (1) Air bag

*Non-functional*

(2) Air bag disconnected (specify): \_\_\_\_\_

(3) Air bag not reinstalled \_\_\_\_\_

(9) Unknown \_\_\_\_\_

22. Air Bag System Deployment 4

- (0) Not equipped/not available
- (1) Air bag deployed during accident (as a result of impact)
- (2) Air bag deployed inadvertently just prior to accident
- (3) Air bag deployed, accident sequence undetermined
- (4) Nondeployed
- (5) Unknown if deployed
- (6) Air bag deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
- (9) Unknown

23. Are There Indications of Air Bag System Failure? 1

- (0) Not equipped/not available

(1) No

(2) Yes (specify): \_\_\_\_\_

(9) Unknown \_\_\_\_\_

Note: See Variables 44 through 48 (Page 5) for Information on Automatic Belts

24. Police Reported Restraint Use 4

- (0) None used
- (1) Police did not indicate restraint use
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt used, type not specified
- (6) Child safety seat
- (7) Other or automatic restraint (specify): \_\_\_\_\_

(8) Restrained, type unknown \_\_\_\_\_

(9) Police indicated "unknown" \_\_\_\_\_

## HEAD RESTRAINT AND SEAT EVALUATION

25. Head Restraint Type/Damage by Occupant at This Occupant Position 3

- (0) No head restraints
- (1) Integral—no damage
- (2) Integral—damaged during accident
- (3) Adjustable—no damage
- (4) Adjustable—damaged during accident
- (5) Add-on—no damage
- (6) Add-on—damaged during accident
- (8) Other (specify): \_\_\_\_\_

(9) Unknown

26. Seat Type (this Occupant Position) 6

- (00) Occupant not seated or no seat
- (01) Bucket
- (02) Bucket with folding back
- (03) Bench
- (04) Bench with separate back cushions
- (05) Bench with folding back(s)
- (06) Split bench with separate back cushions
- (07) Split bench with folding back(s)
- (08) Pedestal (i.e., column supported)
- (09) Other seat type (specify): \_\_\_\_\_

(10) Box mounted seat (i.e., van type)

(99) Unknown

27. Seat Performance (this Occupant Position) 1

- (0) Occupant not seated or no seat
- (1) No seat performance failure(s)
- (2) Seat adjusters failed
- (3) Seat back folding locks or "seat back" failed
- (4) Seat track/anchors failed
- (5) Deformed by impact of occupant
- (6) Deformed by passenger compartment intrusion (specify): \_\_\_\_\_

(7) Combination of above (specify): \_\_\_\_\_

(8) Other (specify): \_\_\_\_\_

(9) Unknown



## CHILD SAFETY SEAT

28. Child Safety Seat Make/Model    $\phi$    $\phi$    $\phi$     
(000) No child safety seat  
Applicable codes are found in your NASS CDS  
Data Collection, Coding and Editing  
(950) Built-in child safety seat  
(997) Other make/model (specify):

\_\_\_\_\_  
(998) Unknown make/model  
(999) Unknown if child safety seat used

29. Type of Child Safety Seat    $\phi$     
(0) No child safety seat  
(1) Infant seat  
(2) Toddler seat  
(3) Convertible seat  
(4) Booster seat  
(7) Other type child safety seat (specify):  
\_\_\_\_\_  
(8) Unknown child safety seat type  
(9) Unknown if child safety seat used

30. Child Safety Seat Orientation    $\phi$    $\phi$     
(00) No child safety seat  
  
*Designed for Rear Facing for This Age/Weight*  
(01) Rear facing  
(02) Forward facing  
(08) Other orientation (specify):  
\_\_\_\_\_  
(09) Unknown orientation

*Designed For Forward Facing for This Age/Weight*  
(11) Rear facing  
(12) Forward facing  
(18) Other orientation (specify):  
\_\_\_\_\_  
(19) Unknown orientation

*Unknown Design or Orientation For This  
Age/Weight, or Unknown Age/Weight*  
(21) Rear facing  
(22) Forward facing  
(28) Other orientation (specify):  
\_\_\_\_\_  
(29) Unknown orientation

(99) Unknown if child safety seat used

31. Child Safety Seat Harness Usage    $\phi$    $\phi$   

32. Child Safety Seat Shield Usage    $\phi$    $\phi$   

33. Child Safety Seat Tether Usage    $\phi$    $\phi$   

Note: Options below applicable to  
Variables OA31-OA33.  
(00) No child safety seat

*Not Designed With Harness/Shield/Tether*

(01) After market harness/shield/tether  
added, not used  
(02) After market harness/shield/tether used  
(03) Child safety seat used, but no after market  
harness/shield/tether added  
(09) Unknown if harness/shield/tether  
added or used

*Designed With Harness/Shield/Tether*

(11) Harness/shield/tether not used  
(12) Harness/shield/tether used  
(19) Unknown if harness/shield/tether used

*Unknown If Designed With Harness/Shield/Tether*

(21) Harness/shield/tether not used  
(22) Harness/shield/tether used  
(29) Unknown if harness/shield/tether used  
  
(99) Unknown if child safety seat used

**INJURY CONSEQUENCES**34. Injury Severity (Police Rating) 2

- (0) O - No injury
- (1) C - Possible injury
- (2) B - Nonincapacitating injury
- (3) A - Incapacitating injury
- (4) K - Killed
- (5) U - Injury, severity unknown
- (6) Died prior to accident
- (9) Unknown

35. Treatment - Mortality 4

- (0) No treatment
- (1) Fatal
- (2) Fatal - ruled disease (specify):

*Nonfatal*

- (3) Hospitalization
- (4) Transported and released
- (5) Treatment at scene - nontransported
- (6) Treatment later
- (8) Treatment - other (specify):
- (9) Unknown

36. Type Of Medical Facility (for Initial Treatment) 2

- (0) Not treated at a medical facility
- (1) Trauma center
- (2) Hospital
- (3) Medical clinic
- (4) Physician's office
- (5) Treatment later at medical facility
- (8) Other (specify):
- (9) Unknown

37. Hospital Stay φ φ

- (00) Not Hospitalized
- Code the number of days (up through 60) that the occupant stayed in hospital.
- (61) 61 days or more
  - (99) Unknown

99. Case Occupant 1

- (0) Not the Case Occupant
- (1) This is the Case Occupant
- (2) This is the Case Occupant in another case.

38. Working Days Lost 6 1

- Code the number of days (up through 60) that the occupant lost from work due to the accident
- (00) No working days lost
  - (61) 61 days or more
  - (62) Fatally injured
  - (97) Not working prior to accident
  - (99) Unknown

**STOP - GO TO VARIABLE 44 ON PAGE 7****VARIABLES 39 THROUGH 43 ARE COMPLETED BY THE ZONE CENTER**39. Time to Death φ φ

- Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 + n up through 30 days = 60)
- (00) Not fatal
  - (96) Fatal - ruled disease
  - (99) Unknown

40. 1st Medically Reported Cause of Death φ φ41. 2nd Medically Reported Cause of Death φ φ42. 3rd Medically Reported Cause of Death φ φ

- Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death
- (00) Not fatal or no additional causes
  - (96) Mode of death given but specific injuries are not linked to cause of death. (specify):

- (97) Other result (includes fatal ruled disease) (specify):

- (99) Unknown

43. Number of Recorded Injuries for This Occupant φ 6

- Code the actual number of injuries recorded for this occupant.
- (00) No recorded injuries
  - (97) Injured, details unknown
  - (99) Unknown if injured

**AUTOMATIC BELT SYSTEM**44. Automatic (Passive) Belt System Availability/ Function φ

- (0) Not equipped/not available
- (1) 2 point automatic belts
- (2) 3 point automatic belts
- (3) Automatic belts - type unknown

*Non-functional*

- (4) Automatic belts destroyed or rendered inoperative
- (9) Unknown

45. Automatic (Passive) Belt System Use φ

- (0) Not equipped/not available/destroyed or rendered inoperative
- (1) Automatic belt in use
- (2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify): \_\_\_\_\_

- (3) Automatic belt use unknown
- (9) Unknown

46. Automatic (Passive) Belt System Type φ

- (0) Not equipped/not available
- (1) Non-motorized system
- (2) Motorized system
- (9) Unknown

47. Proper Use of Automatic (Passive) Belt System φ

- (0) Not equipped/not available/not used
- (1) Automatic belt used properly
- (2) Automatic belt used properly with child safety seat

*Automatic Belt Used Improperly*

- (3) Automatic shoulder belt worn under arm
- (4) Automatic shoulder belt worn behind back
- (5) Automatic belt worn around more than one person
- (6) Lap portion of automatic belt worn on abdomen
- (7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify): \_\_\_\_\_

- (8) Other improper use of automatic belt system (specify): \_\_\_\_\_
- (9) Unknown

48. Automatic (Passive) Belt Failure Modes During Accident φ

- (0) Not equipped/not available/not in use
- (1) No automatic belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): \_\_\_\_\_

- (6) Broken retractor
- (7) Combination of above (specify): \_\_\_\_\_
- (8) Other automatic belt failure (specify): \_\_\_\_\_

- (9) Unknown

49. Seat Orientation (this Occupant Position) 1

- (0) Occupant not seated or no seat
- (1) Forward facing seat
- (2) Rear facing seat
- (3) Side facing seat (inward)
- (4) Side facing seat (outward)
- (8) Other (specify): \_\_\_\_\_

- (9) Unknown

**STOP - VARIABLES 50 THROUGH 52 ARE COMPLETED BY THE ZONE CENTER**

**TRAUMA DATA**50. Glasgow Coma Scale (GCS) Score φ 2  
(at Medical Facility)

- (00) Not injured
- (01) Injured - not treated at medical facility
- (02) No GCS Score at medical facility
- (03-15) Code the actual value of the initial GCS Score recorded at medical facility.
- (97) Injured, details unknown
- (99) Unknown if injured

51. Was the Occupant Given Blood? 1

- (1) No - blood not given
- (2) Yes - blood given (specify units): \_\_\_\_\_
- (9) Unknown if blood given

52. Arterial Blood Gases (ABG) - HCO<sub>3</sub> φ 1

- (00) Not injured
- (01) Injured, ABGs not measured or reported
- (02-50) Code the actual value of the HCO<sub>3</sub>
- (96) ABGs reported, HCO<sub>3</sub> unknown
- (97) Injured, details unknown
- (99) Unknown if injured

ARE ALL APPLICABLE MEDICAL RECORDS INCLUDED WITH INITIAL SUBMISSION?

NO [X] YES [ ]

UPDATE CANDIDATE?

NO [X] YES [ ]



U.S. Department of Transportation  
National Highway Traffic Safety  
Administration

# OCCUPANT INJURY FORM

Form Approved  
O.M.B. No. 2127-0021  
NATIONAL ACCIDENT SAMPLING SYSTEM  
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number \_\_\_\_\_  
2. Case Number - Stratum DSI-93-AB-007

3. Vehicle Number 01  
4. Occupant Number 01

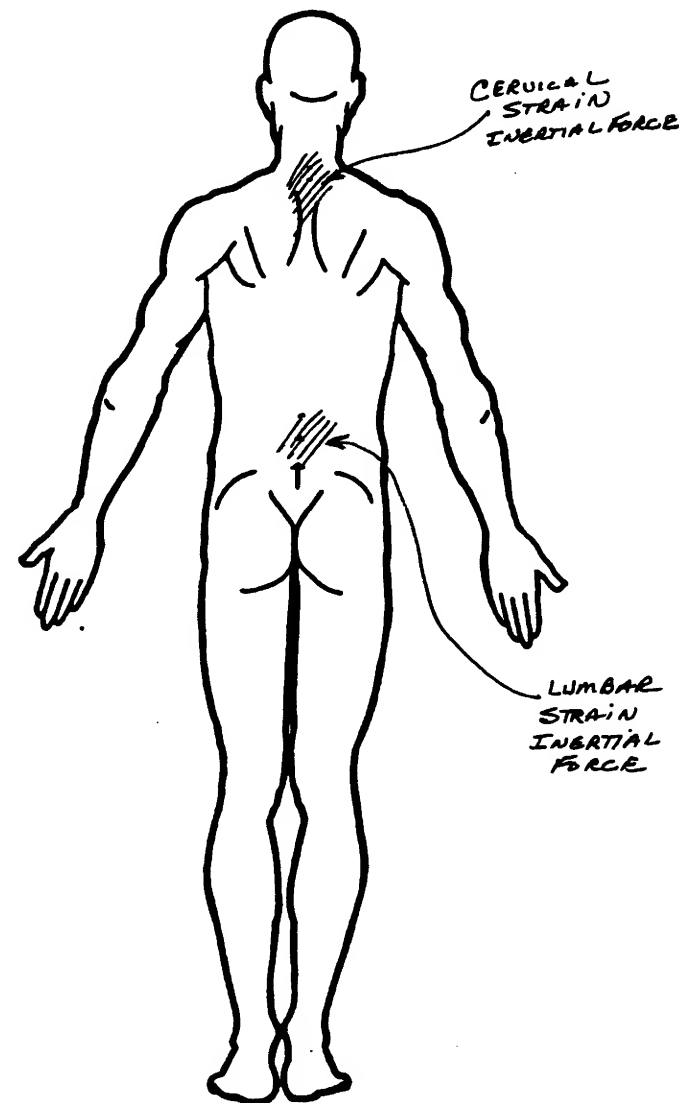
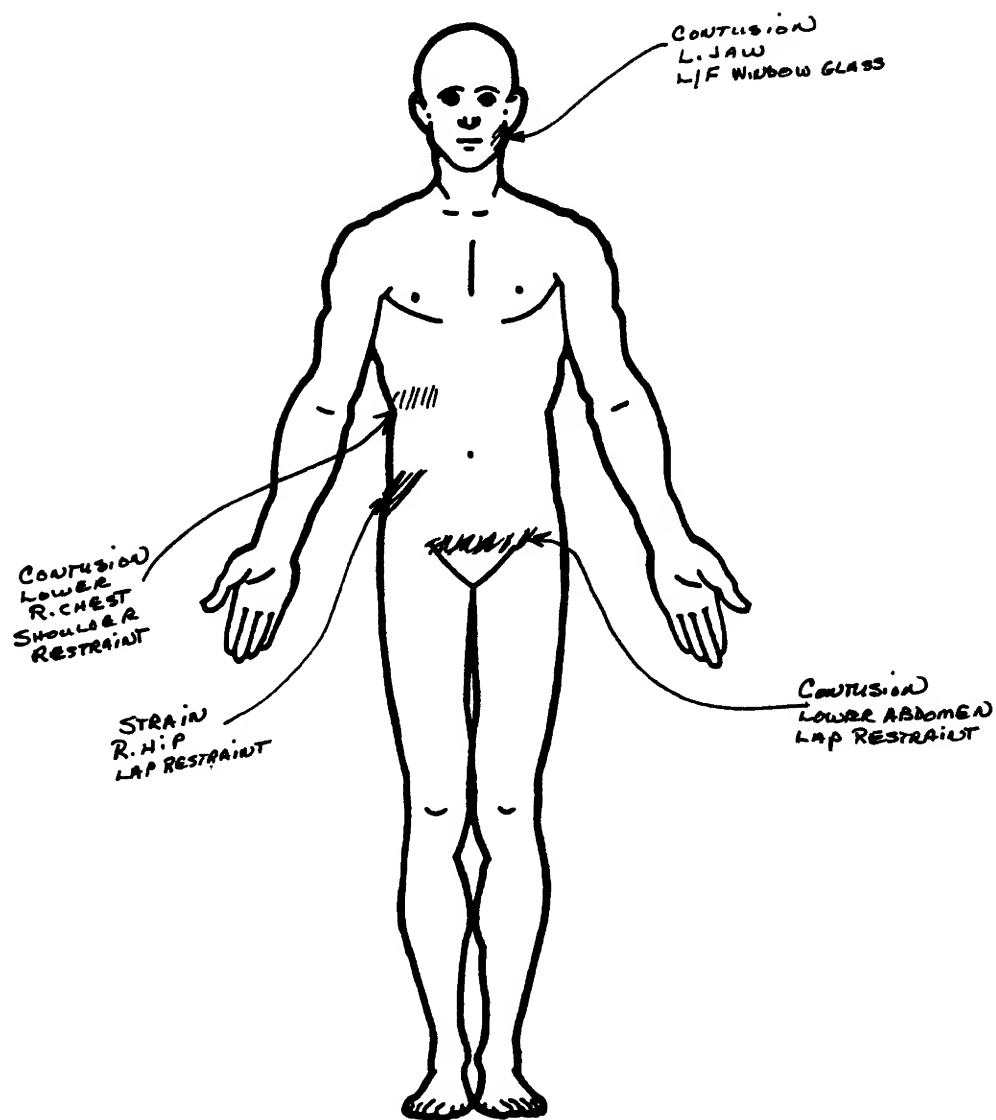
## INJURY DATA

Record below the actual injuries sustained by this occupant that were identified from the official and unofficial data sources. Remember not to double count an injury just because it was identified from two different sources. If greater than ten injuries have been documented, encode the balance on the Occupant Injury Supplement.

	Source of Injury Date	Body Region	O.I.C.-A.I.S			Level of Injury	A.I.S. Severity	Aspect	Injury Source	Injury Source Confidence Level	Direct/ Indirect Injury	Occupant Area Intrusion Number	ICD-9
			Type of Anatomic Structure	Specific Anatomic Structure									
1st	5. <u>3</u>	6. <u>2</u>	7. <u>9</u>	8. <u>04</u>	9. <u>02</u>	10. <u>1</u>	11. <u>2</u>	12. <u>25</u>	13. <u>1</u>	14. <u>1</u>	15. <u>00</u>		<u>920</u>
2nd	16. <u>3</u>	17. <u>6</u>	18. <u>4</u>	19. <u>02</u>	20. <u>78</u>	21. <u>1</u>	22. <u>6</u>	23. <u>92</u>	24. <u>1</u>	25. <u>3</u>	26. <u>00</u>		<u>847.0</u>
3rd	27. <u>3</u>	28. <u>6</u>	29. <u>4</u>	30. <u>06</u>	31. <u>78</u>	32. <u>1</u>	33. <u>8</u>	34. <u>92</u>	35. <u>1</u>	36. <u>3</u>	37. <u>00</u>		<u>847.2</u>
4th	38. <u>7</u>	39. <u>4</u>	40. <u>9</u>	41. <u>04</u>	42. <u>02</u>	43. <u>1</u>	44. <u>1</u>	45. <u>41</u>	46. <u>1</u>	47. <u>1</u>	48. <u>00</u>		<u>922.1</u>
5th	49. <u>7</u>	50. <u>5</u>	51. <u>9</u>	52. <u>04</u>	53. <u>02</u>	54. <u>1</u>	55. <u>4</u>	56. <u>41</u>	57. <u>1</u>	58. <u>1</u>	59. <u>00</u>		<u>922.2</u>
6th	60. <u>3</u>	61. <u>8</u>	62. <u>4</u>	63. <u>06</u>	64. <u>02</u>	65. <u>1</u>	66. <u>1</u>	67. <u>41</u>	68. <u>1</u>	69. <u>1</u>	70. <u>00</u>		<u>843.9</u>
7th	71. ____	72. ____	73. ____	74. ____	75. ____	76. ____	77. ____	78. ____	79. ____	80. ____	81. ____		
8th	82. ____	83. ____	84. ____	85. ____	86. ____	87. ____	88. ____	89. ____	90. ____	91. ____	92. ____		
9th	93. ____	94. ____	95. ____	96. ____	97. ____	98. ____	99. ____	100. ____	101. ____	102. ____	103. ____		
10th	104. ____	105. ____	106. ____	107. ____	108. ____	109. ____	110. ____	111. ____	112. ____	113. ____	114. ____		

## OFFICIAL INJURY DATA — SOFT TISSUE INJURIES

Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)



## SOURCE OF INJURY DATA

### OFFICIAL

- (1) Autopsy records with or without hospital/medical records
- (2) Hospital/medical records other than emergency room (e.g., discharge summary)
- (3) Emergency room records only (including associated X-rays or other lab reports)
- (4) Private physician, walk-in or emergency clinic

### UNOFFICIAL

- (5) Lay coroner report
- (6) E.M.S. personnel
- (7) Interviewee
- (8) Other source (specify): \_\_\_\_\_
- (9) Police

## INJURY SOURCE

### FRONT

- (01) Windshield
- (02) Mirror
- (03) Sunvisor
- (04) Steering wheel rim
- (05) Steering wheel hub/spoke
- (06) Steering wheel (combination of codes 04 and 05)
- (07) Steering column, transmission selector lever, other attachment
- (08) Add on equipment (e.g., CB, tape deck, air conditioner)
- (09) Left instrument panel and below
- (10) Center instrument panel and below
- (11) Right instrument panel and below
- (12) Glove compartment door
- (13) Knee bolster
- (14) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, mirror, or steering assembly (driver side only)
- (15) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, or mirror (passenger side only)
- (16) Driver side air bag compartment cover
- (17) Passenger side air bag compartment cover
- (18) Windshield reinforced by exterior object (specify): \_\_\_\_\_
- (19) Other front object (specify): \_\_\_\_\_

### LEFT SIDE

- (20) Left side interior surface, excluding hardware or armrests
- (21) Left side hardware or armrest
- (22) Left A (A1/A2)-pillar
- (23) Left B-pillar
- (24) Other left pillar (specify): \_\_\_\_\_

- (25) Left side window glass or frame
- (26) Left side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
- (27) Other left side object (specify): \_\_\_\_\_
- (28) Left side window sill

### RIGHT SIDE

- (30) Right side interior surface, excluding hardware or armrests
- (31) Right side hardware or armrest
- (32) Right A (A1/A2)-pillar
- (33) Right B-pillar
- (34) Other right pillar (specify): \_\_\_\_\_
- (35) Right side window glass or frame
- (36) Right side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
- (37) Other right side object (specify): \_\_\_\_\_
- (38) Right side window sill

### INTERIOR

- (40) Seat, back support
- (41) Belt restraint webbing/buckle
- (42) Belt restraint B-pillar or door frame attachment point
- (43) Other restraint system component (specify): \_\_\_\_\_
- (44) Head restraint system
- (45) Air bag (use codes "16" and "17" for injuries sustained from air bag compartment covers)
- (46) Other occupants (specify): \_\_\_\_\_
- (47) Interior loose objects
- (48) Child safety seat (specify): \_\_\_\_\_
- (49) Other interior object (specify): \_\_\_\_\_

### ROOF

- (50) Front header
- (51) Rear header
- (52) Roof left side rail
- (53) Roof right side rail
- (54) Roof or convertible top

### FLOOR

- (56) Floor (including toe pan)
- (57) Floor or console mounted transmission lever, including console
- (58) Parking brake handle
- (59) Foot controls including parking brake

### REAR

- (60) Backlight (rear window)

- (61) Backlight storage rack, door, etc.
- (62) Other rear object (specify): \_\_\_\_\_

### EXTERIOR of OCCUPANT'S VEHICLE

- (65) Hood
- (66) Outside hardware (e.g., outside mirror, antenna)
- (67) Other exterior surface or tires (specify): \_\_\_\_\_
- (68) Unknown exterior objects

### EXTERIOR OF OTHER MOTOR VEHICLE

- (70) Front bumper
- (71) Hood edge
- (72) Other front of vehicle (specify): \_\_\_\_\_
- (73) Hood
- (74) Hood ornament
- (75) Windshield, roof rail, A-pillar
- (76) Side surface
- (77) Side mirrors
- (78) Other side protrusions (specify): \_\_\_\_\_
- (79) Rear surface
- (80) Undercarriage
- (81) Tires and wheels
- (82) Other exterior of other motor vehicle (specify): \_\_\_\_\_
- (83) Unknown exterior of other motor vehicle

### OTHER VEHICLE OR OBJECT IN THE ENVIRONMENT

- (84) Ground
- (85) Other vehicle or object (specify): \_\_\_\_\_
- (86) Unknown vehicle or object

### NONCONTACT INJURY

- (90) Fire in vehicle
- (91) Flying glass
- (92) Other noncontact injury source (specify): INERTIAL FORCE
- (93) Air bag exhaust gases
- (97) Injured, unknown source

## INJURY SOURCE CONFIDENCE LEVEL

- (1) Certain
- (2) Probable
- (3) Possible
- (9) Unknown

## DIRECT/INDIRECT INJURY

- (1) Direct contact injury
- (2) Indirect contact injury
- (3) Noncontact injury
- (7) Injured, unknown source

## OCCUPANT INJURY CLASSIFICATION

### Body Region

- (1) Head
- (2) Face
- (3) Neck
- (4) Thorax
- (5) Abdomen
- (6) Spine
- (7) Upper Extremity
- (8) Lower Extremity
- (9) Unspecified

### Type of Anatomic Structure

- (1) Whole Area
- (2) Vessels
- (3) Nerves
- (4) Organs (Includes muscles/ligaments)
- (5) Skeletal (Includes joints)
- (6) Head - LOC
- (9) Skin

### Specific Anatomic Structure

#### Whole Area

- (02) Skin - Abrasion
- (04) Skin - Contusion
- (06) Skin - Laceration
- (08) Skin - Avulsion
- (10) Amputation
- (20) Burn
- (30) Crush
- (40) Degloving
- (50) Injury - NFS
- (90) Trauma, other than mechanical

#### Head - LOC

- (02) Length of LOC
- (04, 06, 08) Level of Consciousness
- (10) Concussion

### Spine

- (02) Cervical
- (04) Thoracic
- (06) Lumbar

### Vessels, Nerves, Organs, Bones,

Joints are assigned consecutive two digit numbers beginning with 02

### Level of Injury

Specific injuries are assigned consecutive two-digit numbers beginning with 02.

To the extent possible, within the organizational framework of the AIS, 00 is assigned to an injury NFS as to severity or where only one injury is given in the dictionary for that anatomic structure. 99 is assigned to any injury NFS as to lesion or severity.

### Abbreviated Injury Scale

- (1) Minor injury
- (2) Moderate injury
- (3) Serious injury
- (4) Severe injury
- (5) Critical injury
- (6) Maximum (untreatable)
- (7) Injured, unknown severity

### Aspect

- (1) Right
- (2) Left
- (3) Bilateral
- (4) Central
- (5) Anterior
- (6) Posterior
- (7) Superior
- (8) Inferior
- (9) Unknown
- (0) Whole region

# OFFICIAL INJURY DATA — SKELETAL INJURIES

Restrained?

\_\_\_ No

\_\_\_ Yes

Blood Alcohol  
Level (mg/dl)

BAL = \_\_\_

Glasgow Coma  
Scale Score

GCSS = \_\_\_

Units of Blood  
Given

Units = \_\_\_

Arterial Blood  
Gases

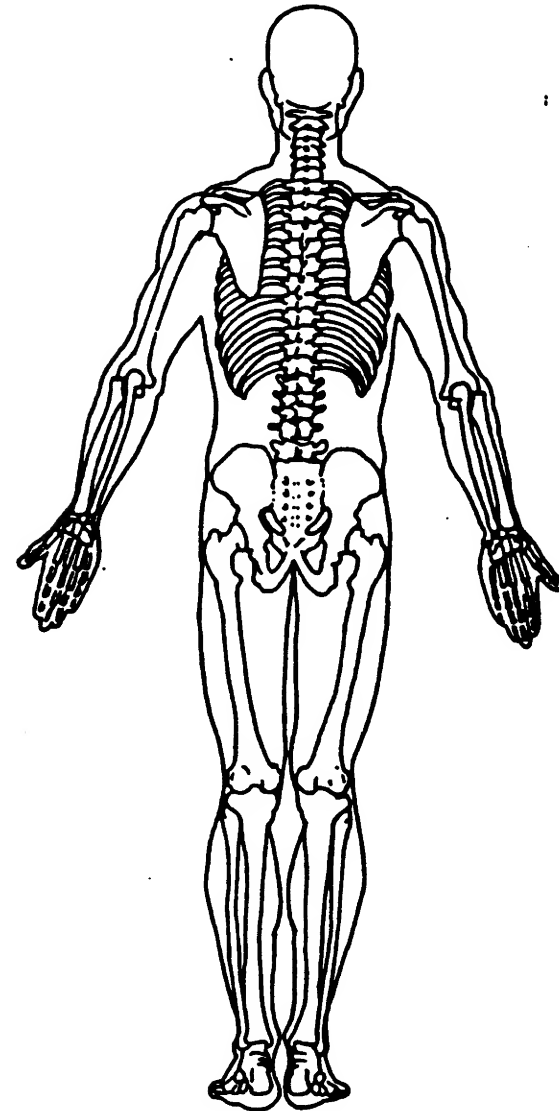
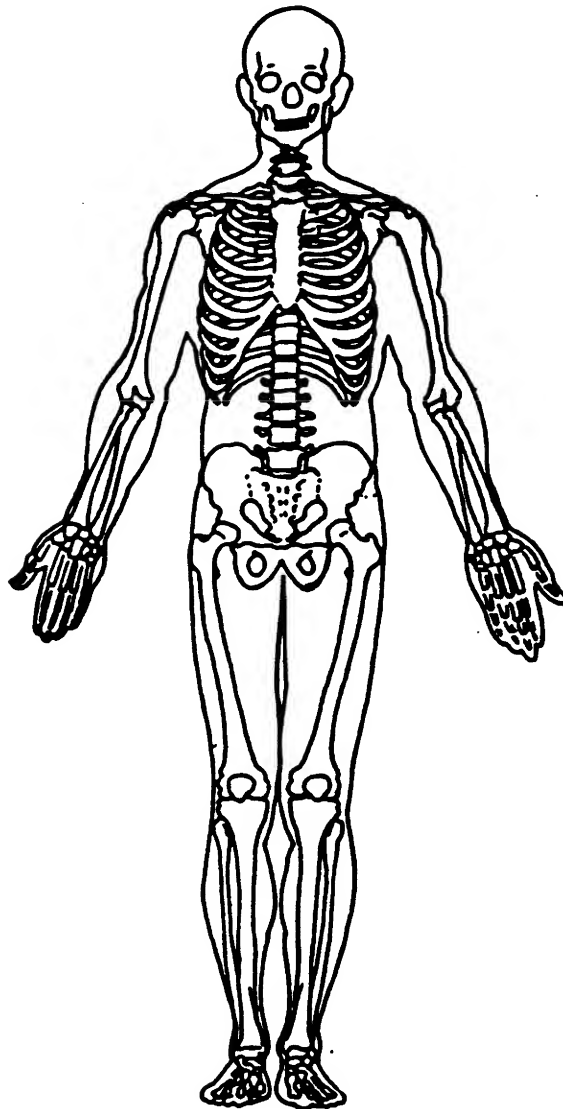
pH = \_\_\_

PO<sub>2</sub> = \_\_\_

PCO<sub>2</sub> \_\_\_

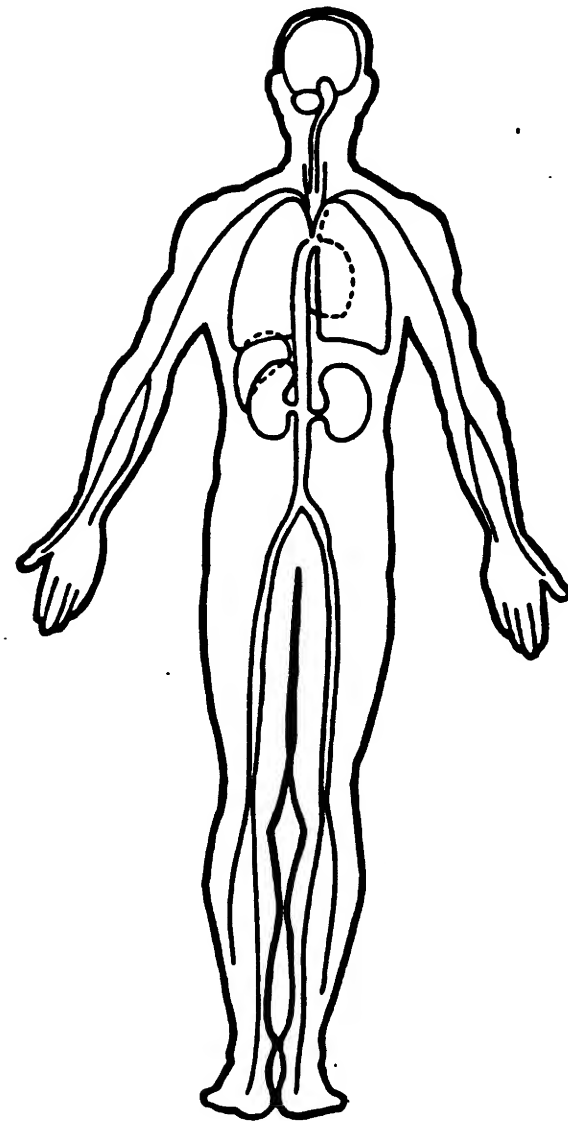
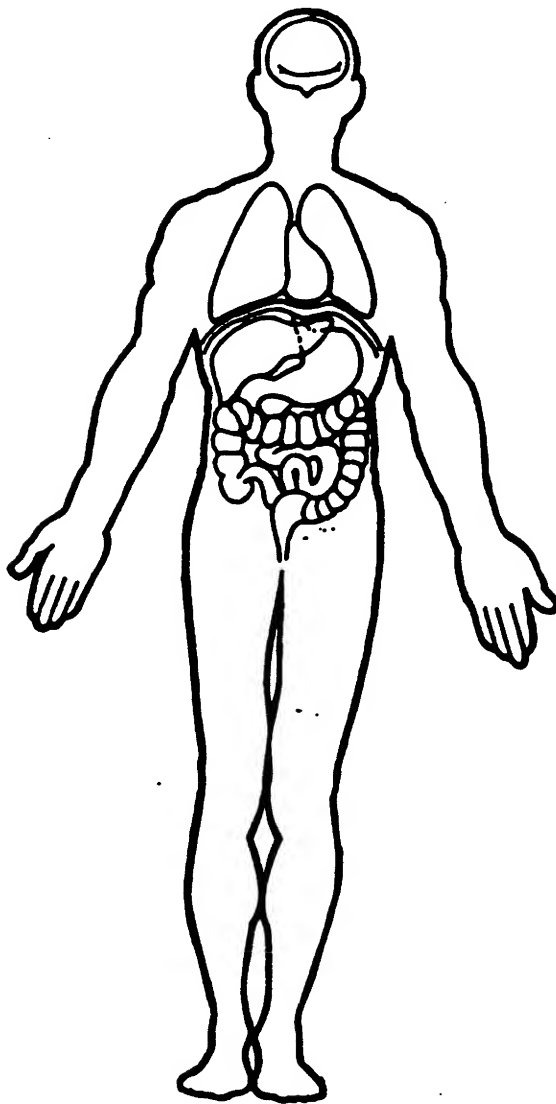
HCO<sub>3</sub> \_\_\_

Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)



## OFFICIAL INJURY DATA —INTERNAL INJURIES

Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)





# OCCUPANT ASSESSMENT FORM

**Form Approved**  
**O.M.B. No. 2127-0021**

## NATIONAL ACCIDENT SAMPLING SYSTEM CRASHWORTHINESS DATA SYSTEM

## OCCUPANT'S SEATING

1. Primary Sampling Unit Number \_\_\_\_\_
2. Case Number - Stratum DSI-93-AB-007
3. Vehicle Number 01
4. Occupant Number 02

## OCCUPANT'S CHARACTERISTICS

- 5. Occupant's Age**
- Code actual age at time of accident.
- (00) Less than one year old (specify by month): \_\_\_\_\_
- (97)   97   years and older
- (99) Unknown
- 6. Occupant's Sex**
- (1) Male
- (2) Female
- (9) Unknown
- 7. Occupant's Height**
- Code actual height to the nearest centimeter.
- (999) Unknown
- 58   inches X 2.54 =   147   centimeters
- 8. Occupant's Weight**
- Code actual weight to the nearest kilogram.
- (999)Unknown
- 186   pounds X .4536 =   85   kilograms
- 9. Occupant's Role**
- (1) Driver
- (2) Passenger
- (9) Unknown

10. Occupant's Seat Position 1 3  
*Front Seat*  
 (11) Left side  
 (12) Middle  
 (13) Right side  
 (14) Other (specify): \_\_\_\_\_  
 (15) On or in the lap of another occupant

### ***Second Seat***

- (21) Left side  
(22) Middle  
(23) Right side  
(24) Other (specify): \_\_\_\_\_  
(25) On or in the lap of another occupant

### ***Third Seat***

- (31) Left side  
(32) Middle  
(33) Right side  
(34) Other (specify): \_\_\_\_\_  
(35) On or in the lap of another occupant

### ***Fourth Seat***

- (41) Left side  
(42) Middle  
(43) Right side  
(44) Other (specify): \_\_\_\_\_  
(45) On or in the lap of another occupant

- (97) In or on unenclosed area  
(98) Other seat (specify): \_\_\_\_\_  
(99) Unknown

11. Occupant's Posture  
(0) Normal posture φ

### ***Abnormal posture***

- (1) **Kneeling or standing on seat**
- (2) **Lying on or across seat**
- (3) **Kneeling, standing or sitting in front of seat**
- (4) **Sitting sideways or turned to talk with another occupant or to look out a rear window**
- (5) **Sitting on a console**
- (6) **Lying back in a reclined seat position**
- (7) **Bracing with feet or hands on a surface in front of seat**
- (8) **Other abnormal posture (specify):**
- (9) **Unknown**

## EJECTION/ENTRAPMENT

12. Ejection φ

- (0) No ejection
- (1) Complete ejection
- (2) Partial ejection
- (3) Ejection, unknown degree
- (9) Unknown

13. Ejection Area φ

- (0) No ejection
- (1) Windshield
- (2) Left front
- (3) Right front
- (4) Left rear
- (5) Right rear
- (6) Rear
- (7) Roof
- (8) Other area (e.g., back of pickup, etc.)  
(specify): \_\_\_\_\_
- (9) Unknown

14. Ejection Medium φ

- (0) No ejection
- (1) Door/hatch/tailgate
- (2) Nonfixed roof structure
- (3) Fixed glazing
- (4) Nonfixed glazing (specify): \_\_\_\_\_
- (5) Integral structure
- (8) Other medium (specify): \_\_\_\_\_
- (9) Unknown

15. Medium Status (Immediately Prior To Impact) φ

- (0) No ejection
- (1) Open
- (2) Closed
- (3) Integral structure
- (9) Unknown

16. Entrapment φ

(NOTE: Entrapped means that part of the person was in the vehicle and mechanically restrained; jammed doors and immobilizing injuries by themselves are not sufficient to constitute entrapment.)

- (0) Not entrapped
- (1) Entrapped
- (9) Unknown

## RESTRAINT SYSTEM EVALUATION

17. Manual (Active) Belt System Availability 4

- (0) None available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available—type unknown

*Integral Belt Partially Destroyed*

- (6) Shoulder belt (lap belt destroyed/removed)
- (7) Lap belt (shoulder belt destroyed/removed)

(8) Other belt (specify): \_\_\_\_\_

(9) Unknown \_\_\_\_\_

18. Manual (Active) Belt System Use 4

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperative (specify): \_\_\_\_\_

(02) Shoulder belt \_\_\_\_\_

(03) Lap belt \_\_\_\_\_

(04) Lap and shoulder belt \_\_\_\_\_

(05) Belt used—type unknown \_\_\_\_\_

(08) Other belt used (specify): \_\_\_\_\_

(12) Shoulder belt used with child safety seat \_\_\_\_\_

(13) Lap belt used with child safety seat \_\_\_\_\_

(14) Lap and shoulder belt used with child safety seat \_\_\_\_\_

(15) Belt used with child safety seat—type unknown \_\_\_\_\_

(18) Other belt used with child safety seat (specify): \_\_\_\_\_

(99) Unknown if belt used \_\_\_\_\_

19. Proper Use of Manual (Active) Belts 1

- (0) None used or not available
- (1) Belt used properly
- (2) Belt used properly with child safety seat

*Belt Used Improperly*

- (3) Shoulder belt worn under arm
- (4) Shoulder belt worn behind back or seat
- (5) Belt worn around more than one person
- (6) Lap belt worn on abdomen
- (7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify): \_\_\_\_\_

(8) Other improper use of manual belt system (specify): \_\_\_\_\_

(9) Unknown \_\_\_\_\_

20. Manual (Active) Belt Failure Modes During Accident 1

- (0) No manual belt used
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): \_\_\_\_\_

(6) Broken retractor \_\_\_\_\_

(7) Combination of above (specify): \_\_\_\_\_

(8) Other manual belt failure (specify): \_\_\_\_\_

(9) Unknown \_\_\_\_\_

21. Air Bag System Availability/Function 1

- (0) Not equipped/not available
- (1) Air bag

*Non-functional*

(2) Air bag disconnected (specify): \_\_\_\_\_

(3) Air bag not reinstalled \_\_\_\_\_

(9) Unknown \_\_\_\_\_

22. Air Bag System Deployment 1

- (0) Not equipped/not available
- (1) Air bag deployed during accident (as a result of impact)
- (2) Air bag deployed inadvertently just prior to accident
- (3) Air bag deployed, accident sequence undetermined
- (4) Nondeployed
- (5) Unknown if deployed
- (6) Air bag deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
- (9) Unknown

23. Are There Indications of Air Bag System Failure? 1

- (0) Not equipped/not available
- (1) No
- (2) Yes (specify): \_\_\_\_\_

(9) Unknown \_\_\_\_\_

Note: See Variables 44 through 48 (Page 5) for Information on Automatic Belts

24. Police Reported Restraint Use 4

- (0) None used
- (1) Police did not indicate restraint use
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt used, type not specified
- (6) Child safety seat
- (7) Other or automatic restraint (specify): \_\_\_\_\_

(8) Restrained, type unknown \_\_\_\_\_

(9) Police indicated "unknown" \_\_\_\_\_

## HEAD RESTRAINT AND SEAT EVALUATION

25. Head Restraint Type/Damage by Occupant at This Occupant Position 3

- (0) No head restraints
- (1) Integral—no damage
- (2) Integral—damaged during accident
- (3) Adjustable—no damage
- (4) Adjustable—damaged during accident
- (5) Add-on—no damage
- (6) Add-on—damaged during accident
- (8) Other (specify):

(9) Unknown

26. Seat Type (this Occupant Position) 6

- (00) Occupant not seated or no seat
- (01) Bucket
- (02) Bucket with folding back
- (03) Bench
- (04) Bench with separate back cushions
- (05) Bench with folding back(s)
- (06) Split bench with separate back cushions
- (07) Split bench with folding back(s)
- (08) Pedestal (i.e., column supported)
- (09) Other seat type (specify):

(10) Box mounted seat (i.e., van type)

(99) Unknown

27. Seat Performance (this Occupant Position) 1

- (0) Occupant not seated or no seat
- (1) No seat performance failure(s)
- (2) Seat adjusters failed
- (3) Seat back folding locks or "seat back" failed
- (4) Seat track/anchors failed
- (5) Deformed by impact of occupant
- (6) Deformed by passenger compartment intrusion (specify):

(7) Combination of above (specify):

(8) Other (specify):

(9) Unknown

## CHILD SAFETY SEAT

28. Child Safety Seat Make/Model φ φ φ  
 (000) No child safety seat  
 Applicable codes are found in your NASS CDS  
 Data Collection, Coding and Editing  
 (950) Built-in child safety seat  
 (997) Other make/model (specify):  
 \_\_\_\_\_

(998) Unknown make/model  
 (999) Unknown if child safety seat used

29. Type of Child Safety Seat φ  
 (0) No child safety seat  
 (1) Infant seat  
 (2) Toddler seat  
 (3) Convertible seat  
 (4) Booster seat  
 (7) Other type child safety seat (specify):  
 \_\_\_\_\_  
 (8) Unknown child safety seat type  
 (9) Unknown if child safety seat used

30. Child Safety Seat Orientation φ φ  
 (00) No child safety seat  
*Designed for Rear Facing for This Age/Weight*  
 (01) Rear facing  
 (02) Forward facing  
 (08) Other orientation (specify):  
 \_\_\_\_\_  
 (09) Unknown orientation

*Designed For Forward Facing for This Age/Weight*  
 (11) Rear facing  
 (12) Forward facing  
 (18) Other orientation (specify):  
 \_\_\_\_\_

(19) Unknown orientation

*Unknown Design or Orientation For This  
 Age/Weight, or Unknown Age/Weight*  
 (21) Rear facing  
 (22) Forward facing  
 (28) Other orientation (specify):  
 \_\_\_\_\_

(29) Unknown orientation

(99) Unknown if child safety seat used

31. Child Safety Seat Harness Usage φ φ

32. Child Safety Seat Shield Usage φ φ

33. Child Safety Seat Tether Usage φ φ

Note: Options below applicable to  
 Variables OA31-OA33.  
 (00) No child safety seat

*Not Designed With Harness/Shield/Tether*

(01) After market harness/shield/tether  
 added, not used  
 (02) After market harness/shield/tether used  
 (03) Child safety seat used, but no after market  
 harness/shield/tether added  
 (09) Unknown if harness/shield/tether  
 added or used

*Designed With Harness/Shield/Tether*

(11) Harness/shield/tether not used  
 (12) Harness/shield/tether used  
 (19) Unknown if harness/shield/tether used

*Unknown If Designed With Harness/Shield/Tether*

(21) Harness/shield/tether not used  
 (22) Harness/shield/tether used  
 (29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used

**INJURY CONSEQUENCES**34. Injury Severity (Police Rating) 1

- (0) O - No injury
- (1) C - Possible injury
- (2) B - Nonincapacitating injury
- (3) A - Incapacitating injury
- (4) K - Killed
- (5) U - Injury, severity unknown
- (6) Died prior to accident
- (9) Unknown

35. Treatment - Mortality 4

- (0) No treatment
- (1) Fatal
- (2) Fatal - ruled disease (specify):  
\_\_\_\_\_

*Nonfatal*

- (3) Hospitalization
- (4) Transported and released
- (5) Treatment at scene - nontransported
- (6) Treatment later
- (8) Treatment - other (specify):  
\_\_\_\_\_
- (9) Unknown

36. Type Of Medical Facility (for Initial Treatment) 2

- (0) Not treated at a medical facility
- (1) Trauma center
- (2) Hospital
- (3) Medical clinic
- (4) Physician's office
- (5) Treatment later at medical facility
- (8) Other (specify):  
\_\_\_\_\_
- (9) Unknown

37. Hospital Stay φ φ

- (00) Not Hospitalized  
\_\_\_\_\_ Code the number of days (up through 60)  
that the occupant stayed in hospital.
- (61) 61 days or more
- (99) Unknown

99. Case Occupant φ

- (0) Not the Case Occupant
- (1) This is the Case Occupant
- (2) This is the Case Occupant  
in another case.

38. Working Days Lost 9 1

- \_\_\_\_\_ Code the number of days  
(up through 60) that the occupant  
lost from work due to the accident
- (00) No working days lost
- (61) 61 days or more
- (62) Fatally injured
- (97) Not working prior to accident
- (99) Unknown

**STOP - GO TO VARIABLE 44 ON PAGE 7****VARIABLES 39 THROUGH 43 ARE  
COMPLETED BY THE ZONE CENTER**39. Time to Death φ φ

- \_\_\_\_\_ Code number of hours from time of  
accident to time of death up through 24  
hours. If time of death is greater than 24  
hours, code number of days. (Note: 1 day =  
31, 2 days = 32, ... n days = 30 + n up  
through 30 days = 60)
- (00) Not fatal
- (96) Fatal - ruled disease
- (99) Unknown

40. 1st Medically Reported Cause of Death φ φ41. 2nd Medically Reported Cause of Death φ φ42. 3rd Medically Reported Cause of Death φ φ

- \_\_\_\_\_ Code the Occupant Injury from line  
number(s) for the medically reported  
injury(s) which reportedly contributed to  
this occupant's death
- (00) Not fatal or no additional causes
- (96) Mode of death given but specific  
injuries are not linked to cause  
of death. (specify):  
\_\_\_\_\_

(97) Other result (includes fatal ruled  
disease) (specify):  
\_\_\_\_\_

(99) Unknown

43. Number of Recorded Injuries for  
This Occupant φ 3

- \_\_\_\_\_ Code the actual number of  
injuries recorded for this occupant.
- (00) No recorded injuries
- (97) Injured, details unknown
- (99) Unknown if injured

**AUTOMATIC BELT SYSTEM**44. Automatic (Passive) Belt System Availability/Function ϕ

- (0) Not equipped/not available
- (1) 2 point automatic belts
- (2) 3 point automatic belts
- (3) Automatic belts - type unknown

*Non-functional*

- (4) Automatic belts destroyed or rendered inoperative
- (9) Unknown

45. Automatic (Passive) Belt System Use ϕ

- (0) Not equipped/not available/destroyed or rendered inoperative
- (1) Automatic belt in use
- (2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify): \_\_\_\_\_

- (3) Automatic belt use unknown
- (9) Unknown

46. Automatic (Passive) Belt System Type ϕ

- (0) Not equipped/not available
- (1) Non-motorized system
- (2) Motorized system
- (9) Unknown

47. Proper Use of Automatic (Passive) Belt System ϕ

- (0) Not equipped/not available/not used
- (1) Automatic belt used properly
- (2) Automatic belt used properly with child safety seat

*Automatic Belt Used Improperly*

- (3) Automatic shoulder belt worn under arm
- (4) Automatic shoulder belt worn behind back
- (5) Automatic belt worn around more than one person
- (6) Lap portion of automatic belt worn on abdomen
- (7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify): \_\_\_\_\_

- (8) Other improper use of automatic belt system (specify): \_\_\_\_\_
- (9) Unknown

48. Automatic (Passive) Belt Failure Modes During Accident ϕ

- (0) Not equipped/not available/not in use
- (1) No automatic belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): \_\_\_\_\_

- (6) Broken retractor
- (7) Combination of above (specify): \_\_\_\_\_
- (8) Other automatic belt failure (specify): \_\_\_\_\_

- (9) Unknown

49. Seat Orientation (this Occupant Position) 1

- (0) Occupant not seated or no seat
- (1) Forward facing seat
- (2) Rear facing seat
- (3) Side facing seat (inward)
- (4) Side facing seat (outward)
- (8) Other (specify): \_\_\_\_\_

- (9) Unknown

**STOP - VARIABLES 50 THROUGH 52 ARE COMPLETED BY THE ZONE CENTER**

**TRAUMA DATA**50. Glasgow Coma Scale (GCS) Score (at Medical Facility) ϕ 2

- (00) Not injured
- (01) Injured - not treated at medical facility
- (02) No GCS Score at medical facility
- (03-15) Code the actual value of the initial GCS Score recorded at medical facility.
- (97) Injured, details unknown
- (99) Unknown if injured

51. Was the Occupant Given Blood? 1

- (1) No - blood not given
- (2) Yes - blood given (specify units): \_\_\_\_\_
- (9) Unknown if blood given

52. Arterial Blood Gases (ABG) - HCO<sub>3</sub> ϕ 1

- (00) Not injured
- (01) Injured, ABGs not measured or reported
- (02-50) Code the actual value of the HCO<sub>3</sub>
- (96) ABGs reported, HCO<sub>3</sub> unknown
- (97) Injured, details unknown
- (99) Unknown if injured

ARE ALL APPLICABLE MEDICAL RECORDS INCLUDED WITH INITIAL SUBMISSION?

NO ☒ YES ☐

UPDATE CANDIDATE?

NO ☒ YES ☐



U.S. Department of Transportation  
National Highway Traffic Safety  
Administration

## OCCUPANT INJURY FORM

BEST AVAILABLE COPY  
Form Approved  
O.M.B. No. 2127-0021  
NATIONAL ACCIDENT SAMPLING SYSTEM  
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number	3. Vehicle Number
2. Case Number - Stratum	4. Occupant Number
DSI-93-AB-φφ7	φ 1 φ 2

### INJURY DATA

Record below the actual injuries sustained by this occupant that were identified from the official and unofficial data sources. Remember not to double count an injury just because it was identified from two different sources. If greater than ten injuries have been documented, encode the balance on the Occupant Injury Supplement.

	Source of Injury Date	O.I.C.-A.I.S.						Injury Source	Injury Source Confidence Level	Direct/ Indirect Injury	Occupant Area Intrusion Number	ICD-9
		Body Region	Type of Anatomic Structure	Specific Anatomic Structure	Level of Injury	A.I.S. Severity	Aspect					
1st	5. 3	6. 2	7. 9	8. φ 2	9. φ 2	10. 1	11. 8	12. 45	13. 1	14. 1	15. φ φ	91φ
2nd	16. 7	17. 2	18. 9	19. φ 2	20. φ 2	21. 1	22. 8	23. 45	24. 1	25. 1	26. φ φ	91φ
3rd	27. 3	28. 6	29. 4	30. φ 2	31. 1 8	32. 1	33. 6	34. 9 2	35. 1	36. 3	37. φ φ	847. φ
4th	38. ____	39. ____	40. ____	41. ____	42. ____	43. ____	44. ____	45. ____	46. ____	47. ____	48. ____	
5th	49. ____	50. ____	51. ____	52. ____	53. ____	54. ____	55. ____	56. ____	57. ____	58. ____	59. ____	
6th	60. ____	61. ____	62. ____	63. ____	64. ____	65. ____	66. ____	67. ____	68. ____	69. ____	70. ____	
7th	71. ____	72. ____	73. ____	74. ____	75. ____	76. ____	77. ____	78. ____	79. ____	80. ____	81. ____	
8th	82. ____	83. ____	84. ____	85. ____	86. ____	87. ____	88. ____	89. ____	90. ____	91. ____	92. ____	
9th	93. ____	94. ____	95. ____	96. ____	97. ____	98. ____	99. ____	100. ____	101. ____	102. ____	103. ____	
10th	104. ____	105. ____	106. ____	107. ____	108. ____	109. ____	110. ____	111. ____	112. ____	113. ____	114. ____	

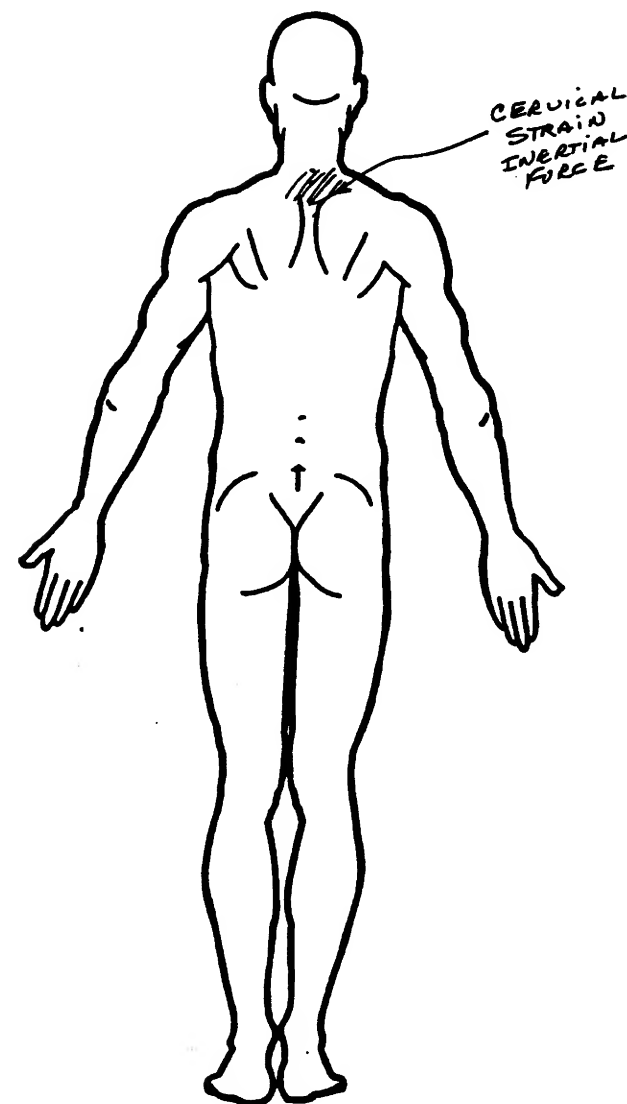
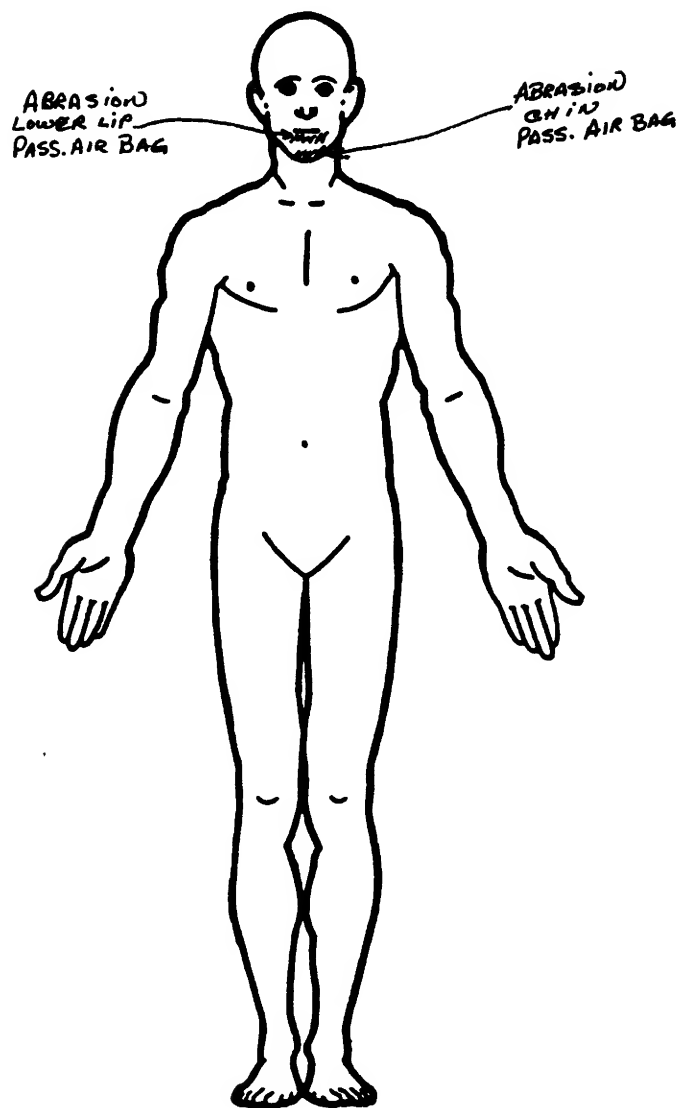
HS Form 433B (1/93)

This report is authorized by P.L. 89-663, Title 1, Section 106, 108, and 112. While you are not required to respond, your cooperation is needed to make the results of this data collection effort comprehensive, accurate, and timely.



## OFFICIAL INJURY DATA — SOFT TISSUE INJURIES

Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)



## SOURCE OF INJURY DATA

### OFFICIAL

- (1) Autopsy records with or without hospital/medical records
- (2) Hospital/medical records other than emergency room (e.g., discharge summary)
- (3) Emergency room records only (including associated X-rays or other lab reports)
- (4) Private physician, walk-in or emergency clinic

### UNOFFICIAL

- (5) Lay coroner report
- (6) E.M.S. personnel
- (7) Interviewee
- (8) Other source (specify): \_\_\_\_\_

- (9) Police

## INJURY SOURCE

### FRONT

- (01) Windshield
- (02) Mirror
- (03) Sunvisor
- (04) Steering wheel rim
- (05) Steering wheel hub/spoke
- (06) Steering wheel (combination of codes 04 and 05)
- (07) Steering column, transmission selector lever, other attachment
- (08) Add on equipment (e.g., CB, tape deck, air conditioner)
- (09) Left instrument panel and below
- (10) Center instrument panel and below
- (11) Right instrument panel and below
- (12) Glove compartment door
- (13) Knee bolster
- (14) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, mirror, or steering assembly (driver side only)
- (15) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, or mirror (passenger side only)
- (16) Driver side air bag compartment cover
- (17) Passenger side air bag compartment cover
- (18) Windshield reinforced by exterior object (specify): \_\_\_\_\_
- (19) Other front object (specify): \_\_\_\_\_

### LEFT SIDE

- (20) Left side interior surface, excluding hardware or armrests
- (21) Left side hardware or armrest
- (22) Left A (A1/A2)-pillar
- (23) Left B-pillar
- (24) Other left pillar (specify): \_\_\_\_\_

- (25) Left side window glass or frame
- (26) Left side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
- (27) Other left side object (specify): \_\_\_\_\_

- (28) Left side window sill

### RIGHT SIDE

- (30) Right side interior surface, excluding hardware or armrests
- (31) Right side hardware or armrest
- (32) Right A (A1/A2)-pillar
- (33) Right B-pillar
- (34) Other right pillar (specify): \_\_\_\_\_
- (35) Right side window glass or frame
- (36) Right side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
- (37) Other right side object (specify): \_\_\_\_\_

- (38) Right side window sill

### INTERIOR

- (40) Seat, back support
- (41) Belt restraint webbing/buckle
- (42) Belt restraint B-pillar or door frame attachment point
- (43) Other restraint system component (specify): \_\_\_\_\_
- (44) Head restraint system
- (45) Air bag (use codes "16" and "17" for injuries sustained from air bag compartment covers)
- (46) Other occupants (specify): \_\_\_\_\_
- (47) Interior loose objects
- (48) Child safety seat (specify): \_\_\_\_\_
- (49) Other interior object (specify): \_\_\_\_\_

### ROOF

- (50) Front header
- (51) Rear header
- (52) Roof left side rail
- (53) Roof right side rail
- (54) Roof or convertible top

### FLOOR

- (56) Floor (including toe pan)
- (57) Floor or console mounted transmission lever, including console
- (58) Parking brake handle
- (59) Foot controls including parking brake

### REAR

- (60) Backlight (rear window)

- (61) Backlight storage rack, door, etc.
- (62) Other rear object (specify): \_\_\_\_\_

### EXTERIOR of OCCUPANT'S VEHICLE

- (65) Hood
- (66) Outside hardware (e.g., outside mirror, antenna)
- (67) Other exterior surface or tires (specify): \_\_\_\_\_
- (68) Unknown exterior objects

### EXTERIOR OF OTHER MOTOR VEHICLE

- (70) Front bumper
- (71) Hood edge
- (72) Other front of vehicle (specify): \_\_\_\_\_

- (73) Hood
- (74) Hood ornament
- (75) Windshield, roof rail, A-pillar
- (76) Side surface
- (77) Side mirrors
- (78) Other side protrusions (specify): \_\_\_\_\_

- (79) Rear surface
- (80) Undercarriage
- (81) Tires and wheels
- (82) Other exterior of other motor vehicle (specify): \_\_\_\_\_

- (83) Unknown exterior of other motor vehicle

### OTHER VEHICLE OR OBJECT IN THE ENVIRONMENT

- (84) Ground
- (85) Other vehicle or object (specify): \_\_\_\_\_
- (86) Unknown vehicle or object

### NONCONTACT INJURY

- (90) Fire in vehicle
- (91) Flying glass
- (92) Other noncontact injury source (specify): INERTIAL FORCE
- (93) Air bag exhaust gases
- (97) Injured, unknown source

## INJURY SOURCE CONFIDENCE LEVEL

- (1) Certain
- (2) Probable
- (3) Possible
- (9) Unknown

## DIRECT/INDIRECT INJURY

- (1) Direct contact injury
- (2) Indirect contact injury
- (3) Noncontact injury
- (7) Injured, unknown source

## OCCUPANT INJURY CLASSIFICATION

### Body Region

- (1) Head
- (2) Face
- (3) Neck
- (4) Thorax
- (5) Abdomen
- (6) Spine
- (7) Upper Extremity
- (8) Lower Extremity
- (9) Unspecified

### Type of Anatomic Structure

- (1) Whole Area
- (2) Vessels
- (3) Nerves
- (4) Organs (includes muscles/ligaments)
- (5) Skeletal (includes joints)
- (6) Head - LOC
- (9) Skin

### Specific Anatomic Structure

#### Whole Area

- (02) Skin - Abrasion
- (04) Skin - Contusion
- (06) Skin - Laceration
- (08) Skin - Avulsion
- (10) Amputation
- (20) Burn
- (30) Crush
- (40) Degloving
- (50) Injury - NFS
- (90) Trauma, other than mechanical

#### Head - LOC

- (02) Length of LOC
- (04, 06, 08) Level of Consciousness
- (10) Concussion

### Spine

- (02) Cervical
- (04) Thoracic
- (06) Lumbar

Vessels, Nerves, Organs, Bones, Joints are assigned consecutive two digit numbers beginning with 02

### Level of Injury

Specific injuries are assigned consecutive two-digit numbers beginning with 02.

To the extent possible, within the organizational framework of the AIS, 00 is assigned to an injury NFS as to severity or where only one injury is given in the dictionary for that anatomic structure. 99 is assigned to any injury NFS as to lesion or severity.

### Abbreviated Injury Scale

- (1) Minor injury
- (2) Moderate injury
- (3) Serious injury
- (4) Severe injury
- (5) Critical injury
- (6) Maximum (untreatable)
- (7) Injured, unknown severity

### Aspect

- (1) Right
- (2) Left
- (3) Bilateral
- (4) Central
- (5) Anterior
- (6) Posterior
- (7) Superior
- (8) Inferior
- (9) Unknown
- (0) Whole region

# OFFICIAL INJURY DATA — SKELETAL INJURIES

Restrained?

☐ No

☐ Yes

Blood Alcohol  
Level (mg/dl)

BAL =

Glasgow Coma  
Scale Score

GCSS =

Units of Blood  
Given

Units =

Arterial Blood  
Gases

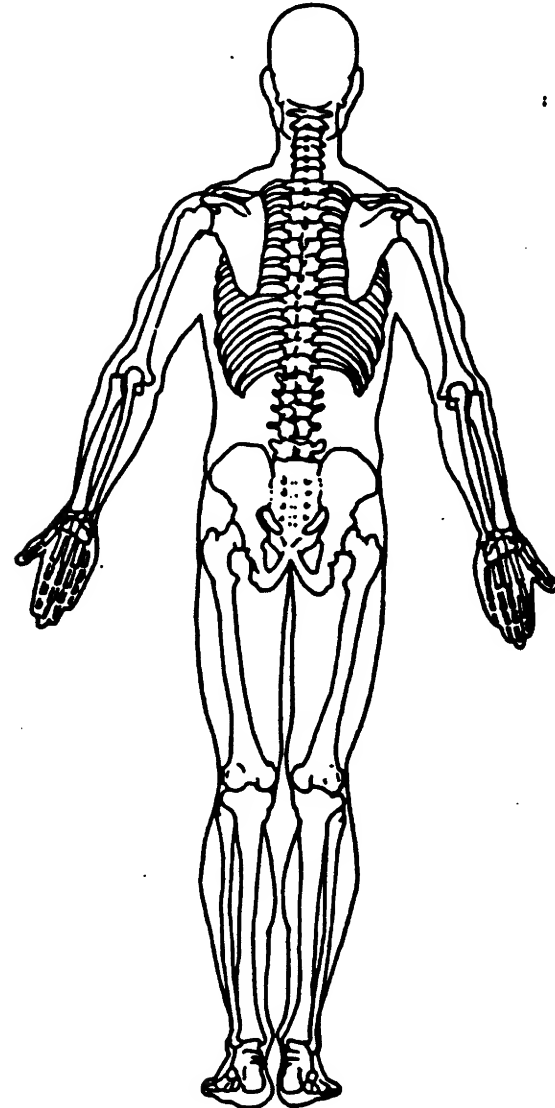
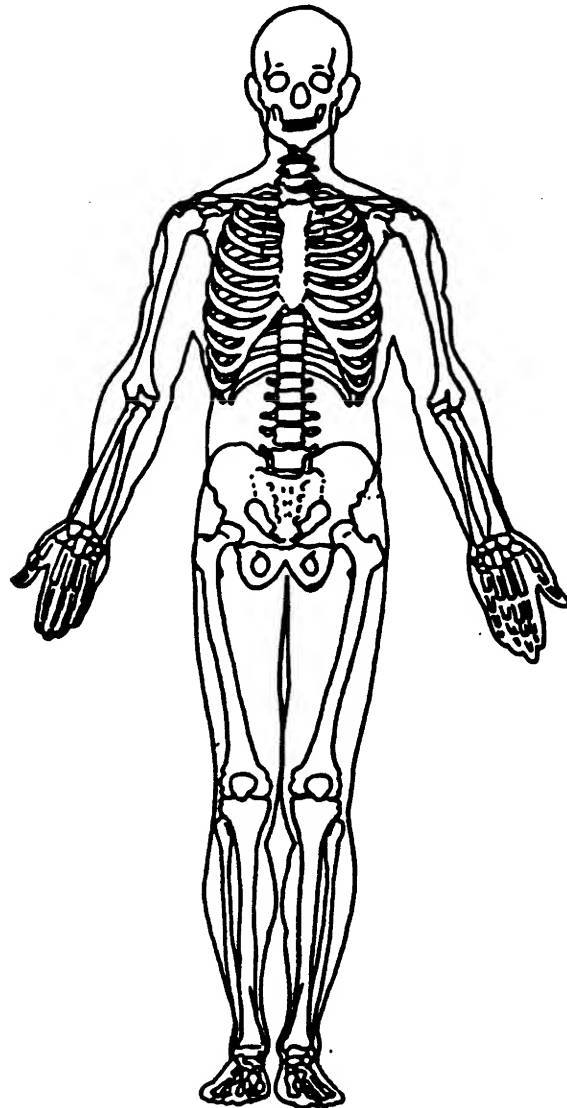
pH =

PO<sub>2</sub> =

PCO<sub>2</sub>

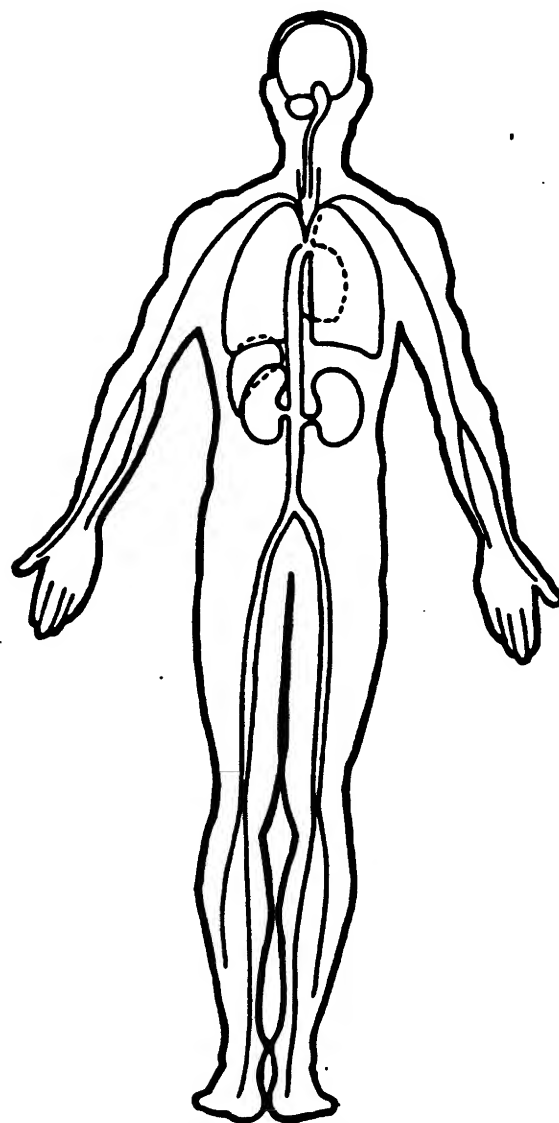
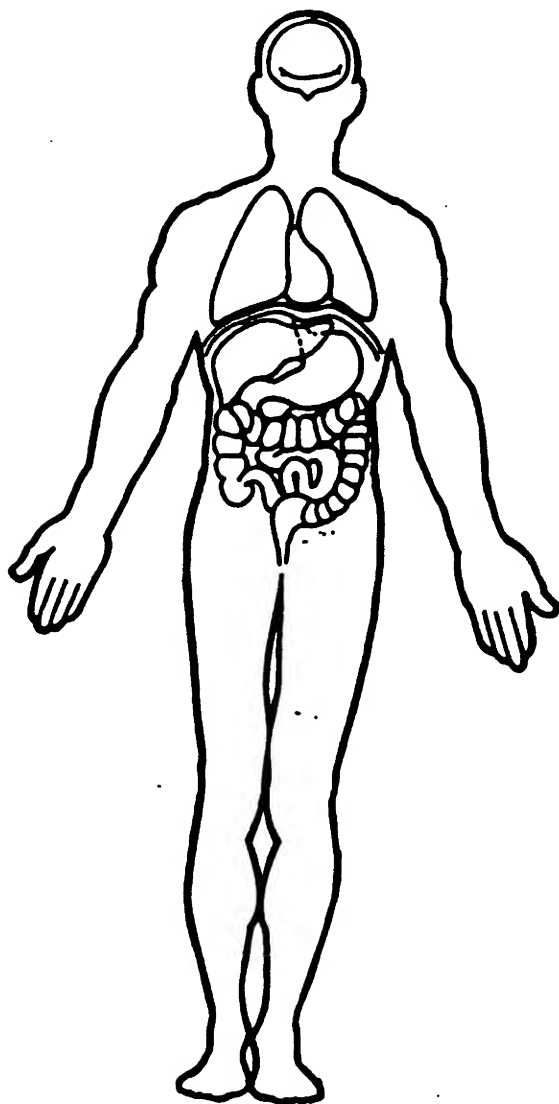
HCO<sub>3</sub>

Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)



## OFFICIAL INJURY DATA —INTERNAL INJURIES

Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)



# GENERAL VEHICLE FORM

**NATIONAL ACCIDENT SAMPLING SYSTEM  
CRASHWORTHINESS DATA SYSTEM**

CRASHWORTHINESS DATA SYSTEM	
<p>1. Primary Sampling Unit Number <u>          </u></p> <p>2. Case Number - Stratum <u>DSI-93-AB-007</u></p> <p>3. Vehicle Number <u>02</u></p>	<p>11. Police Reported Alcohol Presence <u>0</u></p> <p>(0) No alcohol present</p> <p>(1) Yes (alcohol present)</p> <p>(7) Not reported</p> <p>(8) No driver present</p> <p>(9) Unknown</p>
<b>VEHICLE IDENTIFICATION</b>	
<p>4. Vehicle Model Year <u>79</u></p> <p>Code the last two digits of the model year</p> <p>(99) Unknown</p> <p>5. Vehicle Make (specify): <u>12</u></p> <p><u>FORD</u></p> <p>Applicable codes are found in your NASS Data Collection, Coding and Editing Manual.</p> <p>(99) Unknown</p> <p>6. Vehicle Model (specify): <u>003</u></p> <p><u>MUSTANG II</u></p> <p>Applicable codes are found in your NASS Data Collection, Coding and Editing Manual.</p> <p>(999) Unknown</p> <p>7. Body Type <u>03</u></p> <p>Note: Applicable codes may be found on the back of this page.</p> <p>8. Vehicle Identification Number</p> <p><u>F9R03Y</u> * * * * *</p> <p>Left justify; Slash zeros and letter Z (0 and Z)</p> <p>No VIN—Code all zeros</p> <p>Unknown—Code all nine's</p>	<p>Note: See variables 37 through 55 (Page 4) for information on Other Drugs</p> <p>12. Alcohol Test Result For Driver <u>96</u></p> <p>Code actual value (decimal implied before first digit—0.xx)</p> <p>(95) Test refused</p> <p>(96) None given</p> <p>(97) AC test performed, results unknown</p> <p>(98) No driver present</p> <p>(99) Unknown</p> <p>Source: <u>PAR</u></p>
<b>ACCIDENT RELATED</b>	
<p>13. Speed Limit <u>080</u></p> <p>(000) No statutory limit</p> <p>Code posted or statutory speed limit in kph</p> <p>(999) Unknown</p> <p><u>50</u> mph X 1.6093 = <u>80</u> kph</p> <p>14. Attempted Avoidance Maneuver <u>99</u></p> <p>(00) No impact</p> <p>(01) No avoidance actions</p> <p>(02) Braking (no lockup)</p> <p>(03) Braking (lockup)</p> <p>(04) Braking (lockup unknown)</p> <p>(05) Releasing brakes</p> <p>(06) Steering left</p> <p>(07) Steering right</p> <p>(08) Braking and steering left</p> <p>(09) Braking and steering right</p> <p>(10) Accelerating</p> <p>(11) Accelerating and steering left</p> <p>(12) Accelerating and steering right</p> <p>(97) No driver present</p> <p>(98) Other action (specify):</p> <p>(99) Unknown</p> <p>15. Accident Type <u>64</u></p> <p>Applicable codes may be found on the back of page two of this field form</p> <p>(00) No impact</p> <p>Code the number of the diagram that best describes the accident circumstance</p> <p>(98) Other accident type (specify):</p> <p>(99) Unknown</p>	
<b>OFFICIAL RECORDS</b>	
<p>9. Police Reported Vehicle Disposition <u>1</u></p> <p>(0) Not towed due to vehicle damage</p> <p>(1) Towed due to vehicle damage</p> <p>(9) Unknown</p> <p>10. Police Reported Travel Speed <u>072</u></p> <p>Code to the nearest kph (NOTE: 000 means less than 0.5 kph)</p> <p>(160) 159.5 kph and above</p> <p>(999) Unknown</p> <p><u>45</u> mph X 1.6093 = <u>72</u> kph</p>	

\*\*\*\* SKIP TO VARIABLE GV37 IF GV07 DOES NOT EQUAL 01-49 \*\*\*\*

# CODES FOR BODY TYPE

BEST AVAILABLE COPY

## CDS APPLICABLE VEHICLES

### Automobiles

- (01) Convertible (excludes sun-roof, t-bar)
- (02) 2-door sedan, hardtop, coupe
- (03) 3-door/2-door hatchback
- (04) 4-door sedan, hardtop
- (05) 5-door/4-door hatchback
- (06) Station wagon (excluding van and truck based)
- (07) Hatchback, number of doors unknown
- (08) Other automobile type (specify): \_\_\_\_\_
- (09) Unknown automobile type

### Automobile Derivatives

- (10) Auto based pickup (includes El Camino, Caballero, Ranchero, Brat, and Rabbit pickup)
- (11) Auto based panel (cargo station wagon, auto based ambulance/hearse)
- (12) Large limousine - more than four side doors or stretched chassis
- (13) Three-wheel automobile or automobile derivative

### Utility Vehicles ( $\leq 4,500$ kgs GVWR)

- (14) Compact utility (Jeep CJ-2 - CJ-7, Scrambler, Golden Eagle, Renegade, Laredo, Wrangler, Cherokee [84 and after], Dispatcher, Raider, Bronco II, Bronco [76 and before], Explorer, S-10 Blazer, Geo Tracker, Bravada, S-15 Jimmy, Thing, Pathfinder, Trooper, Trooper II, Rodeo, Amigo, Navajo, 4-Runner, Montero, Samurai, Sidekick, Rocky)
- (15) Large utility (includes Jeep Cherokee [83 and before], Ramcharger, Trailduster, Bronco-fullsize [78 and after], fullsize Blazer, fullsize Jimmy, Landcruiser, Rover, Scout)
- (16) Utility station wagon (Chevy Suburban, GMC Suburban, Travelall, Grand Wagoneer, includes suburban limousine)
- (19) Utility, unknown body type

### Van Based Light Trucks ( $\leq 4,500$ kgs GVWR)

- (20) Minivan (Chrysler Town and Country, Caravan, Grand Caravan, Voyager, Grand Voyager, Mini-Ram, Dodge/Plymouth Vista, Aerostar, Villager, Lumina APV, Trans Sport, Silhouette, Astro, Safari, Toyota Van, Toyota Minivan, Previa, Nissan Minivan, Quest, Mitsubishi Minivan, Vanagon/Camper.)
- (21) Large van (B150-B350, Sportsman, Royal, Maxiwagon, Ram, Tradesman, Voyager [83 and before], E150-E350, Econoline, Clubwagon, Chateau, G10-G30, Chevy Van, Beauville, Sport Van, G15-G35, Rally Van, Vandura.)
- (22) Step van or walk-in van ( $\leq 4,500$  kgs GVWR)
- (23) Van based motorhome ( $\leq 4,500$  kgs GVWR)
- (24) Van based school bus ( $\leq 4,500$  kgs GVWR)
- (25) Van based other bus ( $\leq 4,500$  kgs GVWR)
- (28) Other van type (Hi-Cube Van, Kary) (specify): \_\_\_\_\_
- (29) Unknown van type

### Light Conventional Trucks (Pickup style cab, $\leq 4,500$ kgs GVWR)

- (30) Compact pickup (D50, Colt P/U, Ram 50, Dakota, Arrow Pickup [foreign], Ranger, Courier, S-10, T-10, LUV, S-15, T-15, Sonoma, Datsun/Nissan Pickup, P'up, Mazda Pickup, Toyota Pickup, Mitsubishi Pickup)
- (31) Large Pickup (Jeep Pickup, Comanche, Ram Pickup, D100-D350, W100-W350, F100-F350, C10-C35, K10-K35, R10-R35, V10-V35, Silverado, Sierra, R100-R500.)

- (32) Pickup with slide-in camper
- (33) Convertible pickup
- (39) Unknown pickup style light conventional truck type

### Other Light Trucks ( $\leq 4,500$ kgs GVWR)

- (40) Cab chassis based (includes rescue vehicles, light stake, dump, and tow truck)
- (41) Truck based panel
- (42) Light truck based motorhome (chassis mounted)
- (45) Other light conventional truck type
- (48) Unknown light truck type
- (49) Unknown light vehicle type (automobile, utility, van, or light truck)

## OTHER VEHICLES

### Buses (Excludes Van Based)

- (50) School bus (designed to carry students, not cross country or transit)
- (58) Other bus type (e.g., transit, intercity, bus based motorhome) (specify): \_\_\_\_\_
- (59) Unknown bus type

### Medium/Heavy Trucks ( $> 4,500$ kgs GVWR)

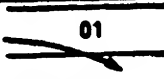
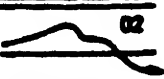

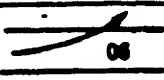
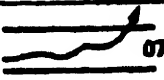

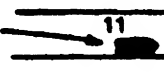

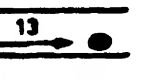
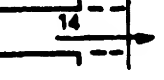
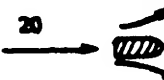
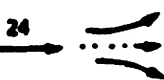
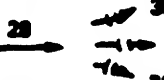
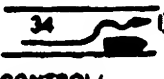



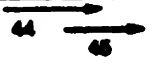

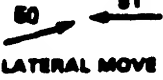

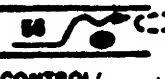






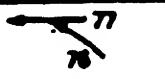

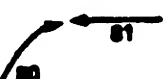
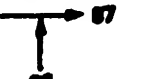

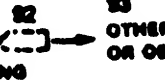

- (60) Step van ( $> 4,500$  kgs GVWR)
- (61) Single unit straight truck ( $4,500$  kgs  $<$  GVWR  $\leq 8,850$  kgs)
- (62) Single unit straight truck ( $8,850$  kgs  $<$  GVWR  $\leq 12,000$  kgs)
- (63) Single unit straight truck ( $> 12,000$  kgs GVWR)
- (64) Single unit straight truck, GVWR unknown
- (65) Medium/heavy truck based motorhome
- (67) Truck-tractor with no cargo trailer
- (68) Truck-tractor pulling one trailer
- (69) Truck-tractor pulling two or more trailers
- (70) Truck-tractor (unknown if pulling trailer)
- (78) Unknown medium/heavy truck type
- (79) Unknown truck type (light/medium/heavy)

### Motored Cycles (Does Not Include All-Terrain Vehicles/Cycles)

- (80) Motorcycle
- (81) Moped (motorized bicycle)
- (82) Three-wheel motorcycle or moped
- (88) Other motored cycle (minibike, motorscooter) (specify): \_\_\_\_\_
- (89) Unknown motored cycle type

### Other Vehicles

- (90) ATV (All-Terrain Vehicle) and ATC (All-Terrain Cycle)
- (91) Snowmobile
- (92) Farm equipment other than trucks
- (93) Construction equipment other than trucks
- (97) Other vehicle type
- (99) Unknown body type

Category	Configuration	ACCIDENT TYPES (Includes Intent)					
I Single Driver	A Right Roadside Departure	 01 DRIVE OFF ROAD	 02 CONTROL/ TRACTION LOSS	 03 AVOID COLLISION WITH VEH., PED., ANIM.	04 SPECIFICS OTHER	05 SPECIFICS UNKNOWN	
	B Left Roadside Departure	 06 DRIVE OFF ROAD	 07 CONTROL/ TRACTION LOSS	 08 AVOID COLLISION WITH VEH., PED., ANIM.	09 SPECIFICS OTHER	10 SPECIFICS UNKNOWN	
	C Forward Impact	 11 PARKED VEH.	 12 STA. OBJECT	 13 PEDESTRIAN/ ANIMAL	 14 END DEPARTURE	15 SPECIFICS OTHER	16 SPECIFICS UNKNOWN
II Same Trafficway Same Direction	D Rear-End	 20 STOPPED 21, 22, 23	 24 SLOWER 25, 26, 27	 28 DECEL. 29, 30, 31	(EACH - 32) SPECIFICS OTHER	(EACH - 33) SPECIFICS UNKNOWN	
	E Forward Impact	 34 CONTROL/ TRACTION LOSS	 36 CONTROL/ TRACTION LOSS	 38 AVOID COLLISION WITH VEH.	 40 AVOID COLLISION WITH OBJECT	(EACH - 42) SPECIFICS OTHER	(EACH - 43) SPECIFICS UNKNOWN
	F Sideswipe Angle	 44 45	 46 47	(EACH - 48) SPECIFICS OTHER	(EACH - 49) SPECIFICS UNKNOWN		
III Same Trafficway Opposite Direction	G Head-On	 50 LATERAL MOVE	(EACH - 52) SPECIFICS OTHER	(EACH - 53) SPECIFICS UNKNOWN			
	H Forward Impact	 54 CONTROL/ TRACTION LOSS	 56 CONTROL/ TRACTION LOSS	 58 AVOID COLLISION WITH VEH.	 60 AVOID COLLISION WITH OBJECT	(EACH - 62) SPECIFICS OTHER	(EACH - 63) SPECIFICS UNKNOWN
	I Sideswipe Angle	 64 LATERAL MOVE	(EACH - 66) SPECIFICS OTHER	(EACH - 67) SPECIFICS UNKNOWN			
IV Change Trafficway Vehicle Turning	J Turn Across Path	 68 INITIAL OPPOSITE DIRECTIONS	 71 INITIAL SAME DIRECTIONS	 73	(EACH - 74) SPECIFICS OTHER	(EACH - 75) SPECIFICS UNKNOWN	
	K Turn Into Path	 77 76 TURN INTO SAME DIRECTION	 78 79 TURN INTO OPPOSITE DIRECTIONS	 81	(EACH - 84) SPECIFICS OTHER	(EACH - 85) SPECIFICS UNKNOWN	
V Intersecting Paths (Vehicle Damage)	L Straight Paths	 87 88	 89	(EACH - 90) SPECIFICS OTHER	(EACH - 91) SPECIFICS UNKNOWN		
VI Miscellaneous	M Backing Etc.	 92 BACKING VEH.	 93 OTHER VEH. OR OBJECT	98 Other Accident Type 99 Unknown Accident Type 00 No Impact			

## OCCUPANT RELATED

16. Driver Presence in Vehicle 1  
(0) Driver not present  
(1) Driver present  
(9) Unknown
17. Number of Occupants This Vehicle 0 1  
(00-96) Code actual number of occupants  
for this vehicle  
(97) 97 or more  
(99) Unknown
18. Number of Occupant Forms Submitted 0 1

## VEHICLE WEIGHT ITEMS

19. Vehicle Curb Weight 1 1 4 0  
 \_\_\_\_\_ Code weight to nearest  
 10 kilograms.  
 (045) Less than 450 kilograms  
 (610) 6,100 kilograms or more  
 (999) Unknown  
φ 2 5 1 6 lbs X .4536 = 1 1 4 1 kgs  
 Source: \_\_\_\_\_
20. Vehicle Cargo Weight φ φ φ 0  
 \_\_\_\_\_ Code weight to nearest  
 10 kilograms.  
 (000) Less than 5 kilograms  
 (450) 4,500 kilograms or more  
 (999) Unknown  
 \_\_\_\_\_ lbs X .4536 = \_\_\_\_\_ kgs

## RECONSTRUCTION DATA

21. Towed Trailing Unit   φ    
(0) No towed unit  
(1) Yes—towed trailing unit  
(9) Unknown
22. Documentation of Trajectory Data  
for This Vehicle   φ    
(0) No  
(1) Yes
23. Post Collision Condition of Tree or Pole  
(For Highest Delta V)   φ    
(0) Not collision (for highest delta V) with  
tree or pole  
(1) Not damaged  
(2) Cracked/sheared  
(3) Tilted < 45 degrees  
(4) Tilted ≥ 45 degrees  
(5) Uprooted tree  
(6) Separated pole from base  
(7) Pole replaced  
(8) Other (specify):  

---

  
(9) Unknown

24. Rollover φ
- (0) No rollover (no overturning)
- Rollover (primarily about the longitudinal axis)*
- (1) Rollover, 1 quarter turn only
- (2) Rollover, 2 quarter turns
- (3) Rollover, 3 quarter turns
- (4) Rollover, 4 or more quarter turns (specify):
- \_\_\_\_\_
- (5) Rollover--end-over-end (i.e., primarily about the lateral axis)
- (9) Rollover (overturn), details unknown

### **OVERRIDE/UNDERRIDE (THIS VEHICLE)**

25. Front Override/Underride (this Vehicle)   φ
26. Rear Override/Underride (this Vehicle)   φ
- (0) No override/underride, or  
not an end-to-end impact
- Override (see specific CDC)*
- (1) 1st CDC
- (2) 2nd CDC
- (3) Other not automated CDC (specify):  
\_\_\_\_\_
- Underride (see specific CDC)*
- (4) 1st CDC
- (5) 2nd CDC
- (6) Other not automated CDC (specify):  
\_\_\_\_\_
- (7) Medium/heavy truck or bus override
- (9) Unknown

## HEADING ANGLE AT IMPACT FOR HIGHEST DELTA V

**Values: (000)-(359) Code actual value**  
**(997) Noncollision**  
**(998) Impact with object**  
**(999) Unknown**

27. Heading Angle For This Vehicle 173
28. Heading Angle For Other Vehicle 273



<p>29. Basis for Total Delta V (highest) <u>1</u></p> <p><i>Delta V Calculated</i></p> <p>(1) CRASH program—damage only routine</p> <p>(2) CRASH program—damage and trajectory routine</p> <p>(3) Missing vehicle algorithm</p> <p><i>Delta V Not Calculated</i></p> <p>(4) At least one vehicle (which may be this vehicle) is beyond the scope of an acceptable reconstruction program, regardless of collision conditions.</p> <p>(5) All vehicles within scope (CDC applicable) of CRASH program but one of the collision conditions is beyond the scope of the CRASH program or other acceptable reconstruction technique, regardless of adequacy of damage data.</p> <p>(6) All vehicle and collision conditions are within scope of one of the acceptable reconstruction programs, but there is insufficient data available.</p>	<p style="text-align: right;">Secondary      Highest</p> <p>32. Lateral Component of Delta V <u>⊕</u> <u>2</u> <u>6</u></p> <p><u>25.6</u> Nearest kph _____ (15.9 mph)</p> <p>(NOTE: __000 means greater than -0.5 kph and less than +0.5 kph) (±160) ±159.5 kph and above (__999) Unknown</p> <p>33. Energy Absorption <u>⊖</u> <u>4</u> <u>8</u>, <u>⊖</u> <u>0</u> <u>0</u></p> <p><u>48423.1</u> Nearest 100 joules _____ (35415.3 ft-lbs)</p> <p>(NOTE: 0000 means less than 50 joules) (9997) 999,650 joules or more (9999) Unknown</p> <p>34. Confidence In Reconstruction Program Results (For Highest Delta V) <u>1</u></p> <p>(0) No reconstruction</p> <p>(1) Collision fits model — results appear reasonable</p> <p>(2) Collision fits model — results appear high</p> <p>(3) Collision fits model — results appear low</p> <p>(4) Borderline reconstruction — results appear reasonable</p> <p>35. Type of Vehicle Inspection <u>1</u></p> <p>(0) No inspection</p> <p>(1) Complete inspection</p> <p>(2) Partial inspection (specify): _____</p> <p>36. Is this an AOPS Vehicle? <u>⊖</u></p> <p>(0) No</p> <p>(1) Yes - researcher determined</p> <p>(2) VIN determined air bag system</p> <p>(3) VIN determined automatic (passive) belts</p> <p>(4) VIN determined air bag and automatic (passive) belts</p>
---	---

COMPUTER GENERATED DELTA V

<p>30. Total Delta V <u>⊖</u> <u>2</u> <u>6</u></p> <p><u>25.8</u> Nearest kph _____ (16.1 mph)</p> <p>(NOTE: 000 means less than 0.5 kph) (160) 159.5 kph and above (999) Unknown</p> <p>31. Longitudinal Component of Delta V <u>⊕</u> <u>⊖</u> <u>⊖</u> <u>3</u></p> <p><u>-3.1</u> Nearest kph _____ (-2.4 mph)</p> <p>(NOTE: __000 means greater than -0.5 kph and less than +0.5 kph) (±160) ±159.5 kph and above (__999) Unknown</p>	<p>35. Type of Vehicle Inspection <u>1</u></p> <p>(0) No inspection</p> <p>(1) Complete inspection</p> <p>(2) Partial inspection (specify): _____</p> <p>36. Is this an AOPS Vehicle? <u>⊖</u></p> <p>(0) No</p> <p>(1) Yes - researcher determined</p> <p>(2) VIN determined air bag system</p> <p>(3) VIN determined automatic (passive) belts</p> <p>(4) VIN determined air bag and automatic (passive) belts</p>
---	--

IS OLDMISS APPLICABLE FOR THIS VEHICLE? [ ] YES [X] NO

IF YES: IS A COMPLETED OLDMISS PROGRAM SUMMARY INCLUDED? [ ] YES [ ] NO

37. Police Reported Other Drug Presence    $\phi$   

- (0) No other drugs present
- (1) Yes (other drug present)
- (7) Not reported
- (8) No driver present
- (9) Unknown

38. Police Reported Drug Evaluation Classification (DEC) Test For Driver    $\phi$   

- (0) No DEC process available or given
- (1) DEC process given, results known
- (2) DEC process given, results unknown
- (3) DEC process available, unknown if given
- (8) No driver present

39. Other Drug Specimen Test Type For Driver    $\phi$   

- (0) No specimen test given
- (1) Blood test
- (2) Urine test
- (3) Other specimen tests (specify): \_\_\_\_\_
- (7) Unspecified specimen test
- (8) No driver present
- (9) Unknown if specimen test given

### DRUG EVALUATION CLASSIFICATION

#### OTHER DRUGS TEST RESULTS FOR DRIVER

	DEC Test Results	Specimen Test Results
Narcotic Drug	40. <u>  <math>\phi</math>  </u>	41. <u>  <math>\phi</math>  </u>
Depressant Drug	42. <u>  <math>\phi</math>  </u>	43. <u>  <math>\phi</math>  </u>
Stimulant Drug	44. <u>  <math>\phi</math>  </u>	45. <u>  <math>\phi</math>  </u>
Hallucinogen Drug	46. <u>  <math>\phi</math>  </u>	47. <u>  <math>\phi</math>  </u>
Cannabinoid Drug	48. <u>  <math>\phi</math>  </u>	49. <u>  <math>\phi</math>  </u>
Phencyclidine (PCP)	50. <u>  <math>\phi</math>  </u>	51. <u>  <math>\phi</math>  </u>
Inhalant Drug	52. <u>  <math>\phi</math>  </u>	53. <u>  <math>\phi</math>  </u>
Other Drug (Excluding Nicotine, Aspirin, Alcohol, Drugs Administered Post-Crash)	54. <u>  <math>\phi</math>  </u>	55. <u>  <math>\phi</math>  </u>

## Codes For DEC Test Results

- (0) No DEC test given
- (1) Passed DEC test
- (2) Failed DEC test
- (3) DEC test given—results unknown
- (8) No driver present
- (9) Unknown if DEC test given

## Codes for Specimen Test Results

- (0) No specimen test given
- (1) Drug not found in specimen
- (2) Drug found in specimen
- (7) Specimen test given, results unknown or not obtained
- (8) No driver present
- (9) Unknown if specimen test given

**OTHER DATA**

## 56. Driver's Zip Code

- (00000) Driver not present  
 (00001) Driver not a resident of U.S. or territories  
 Code actual 5-digit zip code  
 (99999) Unknown

## 57. Driver's Race/Ethnic Origin

- (0) Driver not present  
 (1) White (non-Hispanic)  
 (2) Black (non-Hispanic)  
 (3) White (Hispanic)  
 (4) Black (Hispanic)  
 (5) American Indian, Eskimo or Aleut  
 (6) Asian or Pacific Islander  
 (8) Other (specify):  
 (9) Unknown

## 58. Vehicle Special Use (This Trip)

- (0) No special use  
 (1) Taxi  
 (2) Vehicle used as school bus  
 (3) Vehicle used as other bus  
 (4) Military  
 (5) Police  
 (6) Ambulance  
 (7) Fire truck or car  
 (8) Other (specify):  
 (9) Unknown

**ROLLOVER DATA**

If GV07 (Body Type)  $\neq$  1-49, leave GV59-GV63 blank.  
 If GV24 (Rollover) = 0, then GV59-GV63 must equal 0.  
 If GV24 = 9, then GV59-GV63 must equal 9.

## 59. Rollover Initiation Type

- (0) No rollover  
 (1) Trip-over  
 (2) Flip-over  
 (3) Turn-over  
 (4) Climb-over  
 (5) Fall-over  
 (6) Bounce-over  
 (7) Collision with another vehicle  
 (8) Other rollover initiation type specify):  
 (9) Unknown rollover initiation type

## 60. Location of Rollover Initiation

- (0) No rollover  
 (1) On roadway  
 (2) On shoulder—paved  
 (3) On shoulder—unpaved  
 (4) On roadside or divided trafficway median  
 (9) Unknown

## 61. Rollover Initiation Object Contacted

 $\phi$   $\phi$ 

## 62. Location on Vehicle Where Initial Principal Tripping Force Is Applied

 $\phi$ 

- (0) No rollover  
 (1) Wheels/tires  
 (2) Side plane  
 (3) End plane  
 (4) Undercarriage  
 (5) Other location on vehicle (specify):

(8) Non-contact rollover forces (specify):

(9) Unknown

## 63. Direction of Initial Roll

 $\phi$ 

- (0) No rollover  
 (1) Roll right - primarily about the longitudinal axis  
 (2) Roll left - primarily about the longitudinal axis  
 (5) End-over-end (i.e., primarily about the lateral axis)  
 (9) Unknown roll direction

**PRECRASH DATA**

## 64. Pre-Event Movement (Prior to Recognition of Critical Event)

 $\phi$  1

- (01) Going straight  
 (02) Slowing or stopping in traffic lane  
 (03) Starting in traffic lane  
 (04) Stopped in traffic lane  
 (05) Passing or overtaking another vehicle  
 (06) Disabled or parked in travel lane  
 (07) Leaving a parking position  
 (08) Entering a parking position  
 (09) Turning right  
 (10) Turning left  
 (11) Making a U-turn  
 (12) Backing up (other than for parking position)  
 (13) Negotiating a curve  
 (14) Changing lanes  
 (15) Merging  
 (16) Successful avoidance maneuver to a previous critical event  
 (97) Other (specify):  
 (98) No driver present  
 (99) Unknown

## CODES FOR ROLLOVER INITIATION OBJECT CONTACTED

- (00) No rollover
- (01-30) — Vehicle Number

### Noncollision

- (31) Turn-over — fall-over
- (33) Jackknife

### Collision With Fixed Object

- (41) Tree ( $\leq 10$  cm in diameter)
- (42) Tree ( $> 10$  cm in diameter)
- (43) Shrubbery or bush
- (44) Embankment

- (45) Breakaway pole or post (any diameter)

### Nonbreakaway Pole or Post

- (50) Pole or post ( $\leq 10$  cm in diameter)
- (51) Pole or post ( $> 10$  cm but  $\leq 30$  cm in diameter)
- (52) Pole or post ( $> 30$  cm in diameter)
- (53) Pole or post (diameter unknown)

- (54) Concrete traffic barrier
- (55) Impact attenuator
- (56) Other traffic barrier (includes guardrail)  
(specify): \_\_\_\_\_

- (57) Fence
- (58) Wall
- (59) Building
- (60) Ditch or culvert
- (61) Ground
- (62) Fire hydrant
- (63) Curb
- (64) Bridge
- (68) Other fixed object (specify): \_\_\_\_\_

- (69) Unknown fixed object

### Collision with Nonfixed Object

- (71) Motor vehicle not in-transport
- (76) Animal
- (77) Train
- (78) Trailer, disconnected in transport
- (88) Other nonfixed object (specify): \_\_\_\_\_

- (89) Unknown nonfixed object

- (98) Other event (specify): \_\_\_\_\_

- (99) Unknown event or object

## PRECRASH DATA (Continued)

65. Critical Precrash Event 6*This Vehicle Loss of Control Due To:*

- (01) Blow out or flat tire
- (02) Stalled engine
- (03) Disabling vehicle failure (e.g., wheel fell off) (specify): \_\_\_\_\_
- (04) Non-disabling vehicle problem (e.g., hood flew up) (specify): \_\_\_\_\_
- (05) Poor road conditions (puddle, pot hole, ice, etc.) (specify): \_\_\_\_\_
- (06) Traveling too fast for conditions
- (08) Other cause of control loss (specify): \_\_\_\_\_
- (09) Unknown cause of control loss

*This Vehicle Traveling*

- (10) Over the lane line on left side of travel lane
- (11) Over the lane line on right side of travel lane
- (12) Off the edge of the road on the left side
- (13) Off the edge of the road on the right side
- (14) End departure
- (15) Turning left at intersection
- (16) Turning right at intersection
- (17) Crossing over (passing through) intersection
- (19) Unknown travel direction

*Other Motor Vehicle In Lane*

- (50) Stopped
- (51) Traveling in same direction with lower speed (i.e., lower steady speed or decelerating)
- (52) Traveling in same direction with higher speed
- (53) Traveling in opposite direction
- (54) In crossover
- (55) Backing
- (59) Unknown travel direction of other motor vehicle in lane

*Other Motor Vehicle Encroaching Into Lane*

- (60) From adjacent lane (same direction)—over left lane line
- (61) From adjacent lane (same direction)—over right lane line
- (62) From opposite direction—over left lane line
- (63) From opposite direction—over right lane line
- (64) From parking lane
- (65) From crossing street, turning into same direction
- (66) From crossing street, across path
- (67) From crossing street, turning into opposite direction
- (68) From crossing street, intended path not known
- (70) From driveway, turning into same direction
- (71) From driveway, across path
- (72) From driveway, turning into opposite direction
- (73) From driveway, intended path not known
- (74) From entrance to limited access highway
- (78) Encroachment by other vehicle—details unknown

*Pedestrian or Pedalcyclist, or Other Nonmotorist*

- (80) Pedestrian in roadway
- (81) Pedestrian approaching roadway
- (82) Pedestrian - unknown location
- (83) Pedalcyclist or other nonmotorist in roadway (specify): \_\_\_\_\_
- (84) Pedalcyclist or other nonmotorist approaching roadway (specify): \_\_\_\_\_
- (85) Pedalcyclist or other nonmotorist—unknown location (specify): \_\_\_\_\_

*Object or Animal*

- (87) Animal in roadway
- (88) Animal approaching roadway
- (89) Animal—unknown location
- (90) Object in roadway
- (91) Object approaching roadway
- (92) Object—unknown location
- (98) Other critical precrash event (specify): \_\_\_\_\_
- (99) Unknown

For Corrective Actions Attempted see variable GV14  
(Attempted Avoidance Manuever)

66. Precrash Stability After Avoidance Maneuver 9

- (0) No avoidance maneuver
- (1) Tracking
- (2) Skidding longitudinally—rotation less than 30 degrees
- (3) Skidding laterally—clockwise rotation
- (4) Skidding laterally—counterclockwise rotation
- (7) Other vehicle loss-of-control (specify): \_\_\_\_\_
- (8) No driver present
- (9) Precrash stability unknown

67. Precrash Directional Consequences of Avoidance Maneuver (Corrective Action) 9

- (0) No avoidance maneuver
- (1) Vehicle stayed in travel lane where avoidance maneuver was initiated
- (2) Vehicle stayed on roadway but left travel lane where avoidance maneuver was initiated
- (3) Vehicle stayed on roadway, not known if left travel lane where avoidance maneuver was initiated
- (4) Vehicle departed roadway
- (5) Avoidance maneuver initiated off roadway
- (8) No driver present
- (9) Directional consequences unknown

\*\*\* IF THE CDS APPLICABLE VEHICLE WAS NOT INSPECTED (I.E., GV35 = 0), \*\*\*  
DO NOT COMPLETE THE EXTERIOR AND INTERIOR VEHICLE FORMS.

\*\*\* IF GV07 DOES NOT EQUAL 01-49, DO NOT COMPLETE \*\*\*  
THE EXTERIOR VEHICLE, INTERIOR VEHICLE,  
OCCUPANT ASSESSMENT, AND OCCUPANT INJURY FORMS.

## EXTERIOR VEHICLE FORM

**NATIONAL ACCIDENT SAMPLING SYSTEM  
CRASHWORTHINESS DATA SYSTEM**

1. Primary Sampling Unit Number _____		3. Vehicle Number <u>42</u>
2. Case Number - Stratum <u>DSE-93-AB-007</u>		

### VEHICLE IDENTIFICATION

VIN F 9 R 0 3 Y \* \* \* \* \* Model Year 7 9  
Vehicle Make (specify): FORD Vehicle Model (specify): MUSTANG II 3-DOOR

## LOCATOR

**Locate the end of the damage with respect to the vehicle longitudinal center line or bumper corner for end impacts or an undamaged axle for side impacts.**

Specific Impact No.	Location of Direct Damage	Location of Field L
Φ1	BEGINS 35.6cm (14") FORWARD OF L/R AXLE	BEGINS 61cm (24") FORWARD OF L/R AXLE

### CRUSH PROFILE IN CENTIMETERS

NOTES: Identify the plane at which the C-measurements are taken (e.g., at bumper, above bumper, at sill, above sill, etc.) and label adjustments (e.g., free space).

**Measure and document on the vehicle diagram the location of maximum crush.**

**Measure C1 to C6 from driver to passenger side in front or rear impacts and rear to front in side impacts.**

Free space value is defined as the distance between the baseline and the original body contour taken at the individual C locations. This may include the following: bumper lead, bumper taper, side protrusion, side taper, etc. Record the value for each C-measurement and maximum crush.

**Use as many lines/columns as necessary to describe each damage profile.**

[illegible]

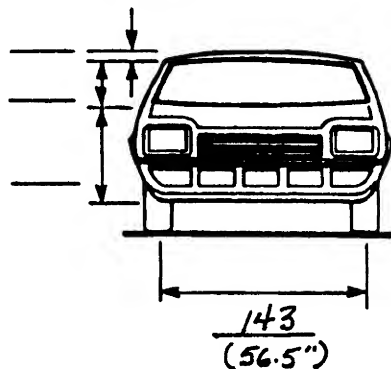
# ORIGINAL SPECIFICATIONS WORK SHEET

Wheelbase	<u>1</u> <u>0</u> <u>6.4</u> inches	x 2.54 =	<u>2</u> <u>5</u> <u>5</u> cm
Overall Length	<u>1</u> <u>7</u> <u>9.1</u> inches	x 2.54 =	<u>4</u> <u>5</u> <u>5</u> cm
Maximum Width	<u>0</u> <u>6</u> <u>9.1</u> inches	x 2.54 =	<u>1</u> <u>7</u> <u>6</u> cm
Curb Weight	<u>0</u> <u>2,516</u> pounds	x .4536 =	<u>1,141</u> kg
Average Track	<u>0</u> <u>5</u> <u>6.8</u> inches	x 2.54 =	<u>1</u> <u>4</u> <u>4</u> cm
Front Overhang	<u>0</u> <u>3</u> <u>9.4</u> inches	x 2.54 =	<u>1</u> <u>0</u> <u>0</u> cm
Rear Overhang	<u>0</u> <u>3</u> <u>9.3</u> inches	x 2.54 =	<u>1</u> <u>0</u> <u>0</u> cm
Undeformed End Width	<u>0</u> <u>6</u> <u>0.0</u> inches	x 2.54 =	<u>1</u> <u>5</u> <u>2</u> cm
Engine Size: cyl./displ.	<u>2</u> <u>3</u> <u>0</u> <u>0</u> cc	x .001 =	<u>2.3</u> L
	<u>1</u> <u>4</u> <u>0</u> CID	x .0164 =	<u>2.3</u> L

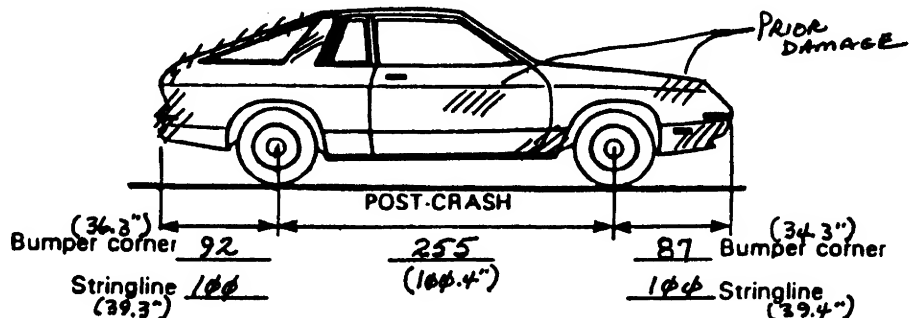
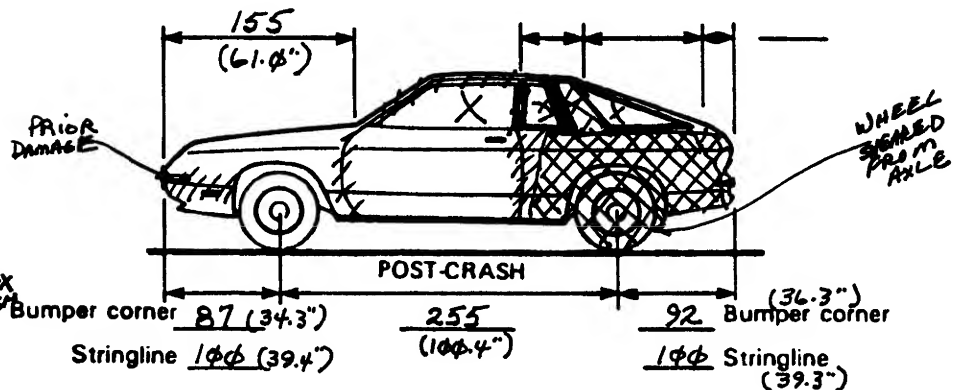
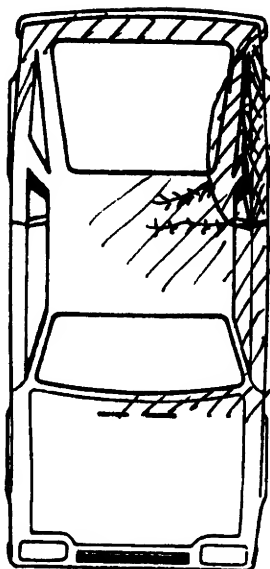
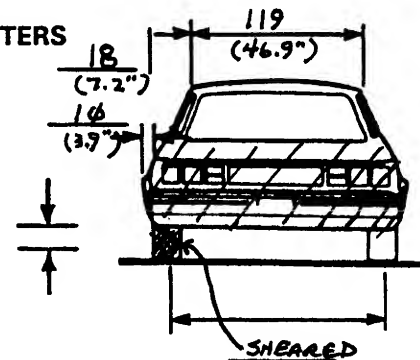
## VEHICLE DAMAGE SKETCH

<b>TIRE—WHEEL DAMAGE</b> a. Rotation physically restricted RF <u>2</u> LF <u>2</u> RR <u>2</u> LR <u>SHEARED</u> (1) Yes (2) No (8) NA (9) Unk.		<b>b. Tire deflated</b> RF <u>2</u> LF <u>2</u> RR <u>1</u> LR <u>8</u>		<b>ORIGINAL SPECIFICATIONS</b> Wheelbase <u>255</u> cm Overall Length <u>455</u> cm Maximum Width <u>176</u> cm Curb Weight <u>6141</u> kg Average Track <u>144</u> cm Front Overhang <u>100</u> cm Rear Overhang <u>100</u> cm Undeformed End Width <u>152</u> cm Engine Size: cyl./displ. <u>L4/2.3</u> L		<b>WHEEL STEER ANGLES</b> (For locked front wheels or displaced rear axles only) RF ± <u>    </u> ° LF ± <u>    </u> ° RR ± <u>    </u> ° LR ± <u>    </u> ° Within ± 5 degrees	
<b>TYPE OF TRANSMISSION</b> <input checked="" type="checkbox"/> Manual <input type="checkbox"/> Automatic				<b>DRIVE WHEELS</b> <input type="checkbox"/> FWD <input checked="" type="checkbox"/> RWD <input type="checkbox"/> 4WD			
				Approximate Cargo Weight <u>0</u> kg			

STRING LINE AOW



MEASUREMENTS IN CENTIMETERS



NOTES: Sketch new perimeter and cross hatch direct damage and single hatch induced damage on all views. Annotate observations which might be useful in reconstructing the accident (e.g., grass in tire bead, direction of striations, scuff on sidewalls, etc.). If pulling trailer, sketch type of trailer and damage received on the back of this page.

Annotate any damage caused by extrication such as component removal by torching, prying, or hydraulic shears.





## COLLISION DEFORMATION CLASSIFICATION

## HIGHEST DELTA "V"

Accident Event Sequence Number	Object Contacted	(1) (2) Direction of Force	(3) Deformation Location	(4) Longitudinal or Lateral Location	(5) Vertical or Lateral Location	(6) Type of Damage Distribution	(7) Deformation Extent
4. <u>φ 1</u>	5. <u>φ 1</u>	6. <u>φ 9</u>	7. <u>L</u>	8. <u>Z</u>	9. <u>E</u>	10. <u>W</u>	11. <u>φ 3</u>

## Second Highest Delta "V"

12. _____	13. _____	14. _____	15. _____	16. _____	17. _____	18. _____	19. _____
-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------

## CRUSH PROFILE IN CENTIMETERS

The crush profile for the damage described in the CDC(s) above should be documented in the appropriate space below. (ALL MEASUREMENTS ARE IN CENTIMETERS.)

## HIGHEST DELTA "V"

20. <u>L</u>	21. <u>C<sub>1</sub></u>	<u>C<sub>2</sub></u>	<u>C<sub>3</sub></u>	<u>C<sub>4</sub></u>	<u>C<sub>5</sub></u>	<u>C<sub>6</sub></u>	22. <u>±D</u>
<u>1 5 2</u> (6φ")	<u>φ 1 9</u> (φ7")	<u>φ 3 3</u> (13")	<u>φ 4 1</u> (16")	<u>φ 4 4</u> (17")	<u>φ 2 4</u> (1φ")	<u>φ φ φ</u>	<u>+ 1 3 3</u> (-52")

## Second Highest Delta "V"

23. <u>L</u>	24. <u>C<sub>1</sub></u>	<u>C<sub>2</sub></u>	<u>C<sub>3</sub></u>	<u>C<sub>4</sub></u>	<u>C<sub>5</sub></u>	<u>C<sub>6</sub></u>	25. <u>±D</u>
_____	_____	_____	_____	_____	_____	_____	<u>+</u> <u>-</u>

26. Are CDCs Documented but Not Coded on The Automated File? φ  
(0) No  
(1) Yes

27. Researcher's Assessment of Vehicle Disposition 1  
(0) Not towed due to vehicle damage  
(1) Towed due to vehicle damage  
(9) Unknown

28. Original Wheelbase 2 5 5  
Code to the nearest centimeter  
(999) Unknown

1 φ φ . 4 inches X 2.54 = 2 5 5 centimeters

29. Is This A Multi-Stage Manufactured Vehicle  
And/Or A Certified Altered Vehicle? φ

- (0) No post manufacturer modifications  
(1) Yes - post manufacturer modifications  
(specify): \_\_\_\_\_

\_\_\_\_\_  
(Include photograph of CERTIFICATION  
PLACARD in case report)

- (9) Unknown if vehicle is modified

30. Fire Occurrence φ

- (0) No fire

Yes, fire occurred

- (1) Minor  
(2) Major  
(9) Unknown

31. Origin of Fire φ

- (0) No fire  
(1) Vehicle exterior (front, side, back, top)  
(2) Exhaust system  
(3) Fuel tank (and other fuel retention  
system parts)  
(4) Engine compartment  
(5) Cargo/trunk compartment  
(6) Instrument panel  
(7) Passenger compartment area  
(8) Other location (specify): \_\_\_\_\_

- (9) Unknown

32. Type of Fuel Tank L

- (0) No fuel tank (electrical vehicle)  
(1) Metallic  
(2) Non-metallic  
(9) Unknown

\*\*\* STOP: IF THE CDS APPLICABLE VEHICLE WAS NOT TOWED AND WAS NOT AN AOPS \*\*\*  
(I.E., GV09 = 0 OR 9 AND GV36 = 0), DO NOT COMPLETE THE INTERIOR VEHICLE FORM.



# INTERIOR VEHICLE FORM

1. Primary Sampling Unit Number \_\_\_\_\_

2. Case Number - Stratum DSI-93-AB-007

3. Vehicle Number 02

## INTEGRITY

4. Passenger Compartment Integrity 06

(00) No integrity loss

Yes, Integrity Was Lost Through

- (01) Windshield
- (02) Door (side)
- (03) Door/hatch (back door)
- (04) Roof
- (05) Roof glass
- (06) Side window
- (07) Rear window (backlight)
- (08) Roof and roof glass
- (09) Windshield and door (side)
- (10) Windshield and roof
- (11) Side and rear window (side window and backlight)
- (12) Windshield and side window
- (13) Door and side window
- (98) Other combination of above (specify): \_\_\_\_\_

(99) Unknown

Door, Tailgate or Hatch Opening

5. LF 3 6. RF 1 7. LR 0 8. RR 0 9. TG/H 3

- (0) No door/gate/hatch
- (1) Door/gate/hatch remained closed and operational
- (2) Door/gate/hatch came open during collision
- (3) Door/gate/hatch jammed shut
- (8) Other (specify): \_\_\_\_\_

(9) Unknown

Damage/Failure Associated with Door, Tailgate or Hatch Opening in Collision. If IV05-IV09 ≠ 2, Then code 0

10. LF 0 11. RF 0 12. LR 0 13. RR 0 14. TG/H 0

(0) No door/gate/hatch or door not opened

Door, Tailgate or Hatch Came Open During Collision

- (1) Door operational (no damage)
- (2) Latch/striker failure due to damage
- (3) Hinge failure due to damage
- (4) Door structure failure due to damage
- (5) Door support (i.e., pillar, sill, roof side rail, etc.) failure due to damage
- (6) Latch/striker and hinge failure due to damage
- (8) Other failure (specify): \_\_\_\_\_

(9) Unknown

## GLAZING

Glazing Damage from Impact Forces

15. WS 0 16. LF 6 17. RF 0 18. LR 6 19. RR 0  
20. BL 0 21. Roof 8 22. Other 8

- (0) No glazing damage from impact forces
- (2) Glazing in place and cracked from impact forces
- (3) Glazing in place and holed from impact forces
- (4) Glazing out-of-place (cracked or not) and not holed from impact forces
- (5) Glazing out-of-place and holed from impact forces
- (6) Glazing disintegrated from impact forces
- (7) Glazing removed prior to accident
- (8) No glazing
- (9) Unknown if damaged

Glazing Damage from Occupant Contact

23. WS 0 24. LF 9 25. RF 0 26. LR 0 27. RR 0  
28. BL 0 29. Roof 0 30. Other 0

- (0) No occupant contact to glazing or no glazing
- (1) Glazing contacted by occupant but no glazing damage
- (2) Glazing in place and cracked by occupant contact
- (3) Glazing in place and holed by occupant contact
- (4) Glazing out-of-place (cracked or not) by occupant contact and not holed by occupant contact
- (5) Glazing out-of-place by occupant contact and holed by occupant contact
- (6) Glazing disintegrated by occupant contact
- (9) Unknown if contacted by occupant

If No Glazing Damage *And* No Occupant Contact or No Glazing, Then Code IV31 Through IV46 As 0

Type of Window/Windshield Glazing

31. WS 0 32. LF 2 33. RF 0 34. LR 2 35. RR 0  
36. BL 0 37. Roof 0 38. Other 0

- (0) No glazing contact and no damage, or no glazing
- (1) AS-1 — Laminated
- (2) AS-2 — Tempered
- (3) AS-3 — Tempered-tinted
- (4) AS-14 — Glass/Plastic
- (8) Other (specify): \_\_\_\_\_

(9) Unknown

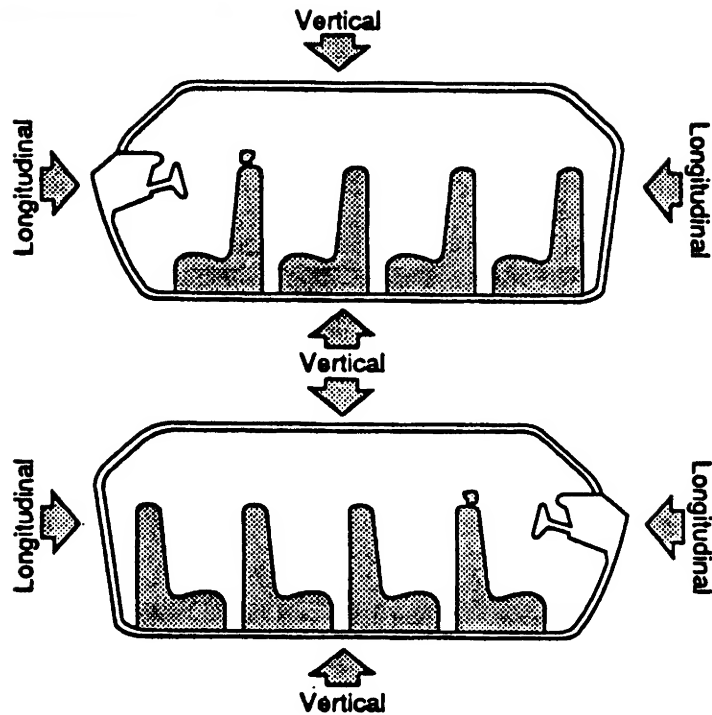
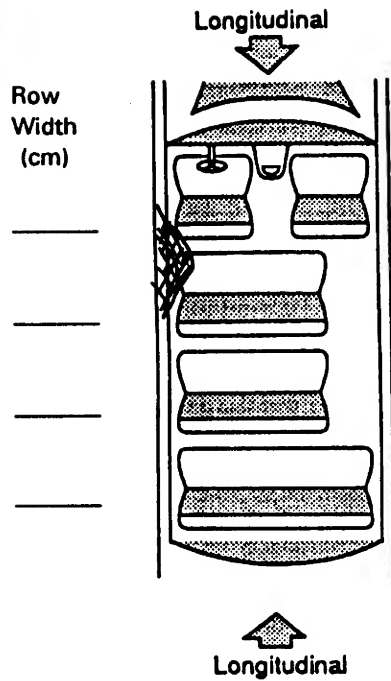
Window Precrash Glazing Status

39. WS 0 40. LF 2 41. RF 0 42. LR 1 43. RR 0  
44. BL 0 45. Roof 0 46. Other 0

- (0) No glazing contact and no damage, or no glazing
- (1) Fixed
- (2) Closed
- (3) Partially opened
- (4) Fully opened
- (9) Unknown

# INTRUSION WORKSHEET

Note: Sketch intruded areas



LOCATION OF INTRUSION	INTRUDED COMPONENT	(All Measurements Are In Centimeters)			DOMINANT CRUSH DIRECTION
		COMPARISON VALUE	INTRUDED VALUE	INTRUSION	
21	L. "C" PILLAR	7 $\phi$ (27.5")	38 (15.4")	32 (12.5")	LATERAL
21	L/R SIDE PANEL	52 (20.5")	33 (13.4")	19 (7.5")	LATERAL
21	L. "B" PILLAR	69 (27.4")	56 (22.4")	13 (5.4")	LATERAL
		-	-	=	
		-	-	=	
		-	-	=	
		-	-	=	
		-	-	=	
		-	-	=	
		-	-	=	
		-	-	=	
		-	-	=	
		-	-	=	
		-	-	=	
		-	-	=	
		-	-	=	

Document no more than the 15 most severe intrusions

## OCCUPANT AREA INTRUSION

Note: If no intrusions, leave variables IV47-IV86 blank.

## INTRUDING COMPONENT

## Interior Components

- (01) Steering assembly
- (02) Instrument panel left
- (03) Instrument panel center
- (04) Instrument panel right
- (05) Toe pan
- (06) A (A1/A2)-pillar
- (07) B-pillar
- (08) C-pillar
- (09) D-pillar
- (10) Door panel (side)
- (12) Roof (or convertible top)
- (13) Roof side rail
- (14) Windshield
- (15) Windshield header
- (16) Window frame
- (17) Floor pan (includes sill)
- (18) Backlight header
- (19) Front seat back
- (20) Second seat back
- (21) Third seat back
- (22) Fourth seat back
- (23) Fifth seat back
- (24) Seat cushion
- (25) Back door/panel (e.g., tailgate)
- (26) Other interior component (specify):

- (27) Side panel - forward of the A (A2)-pillar
- (28) Side panel - rear of the A (A2)-pillar

## Exterior Components

- (30) Hood
- (31) Outside surface of this vehicle (specify):
- (32) Other exterior object in the environment (specify):
- (33) Unknown exterior object
- (97) Catastrophic
- (98) Intrusion of unlisted component(s) (specify):
- (99) Unknown

## LOCATION OF INTRUSION

## Front Seat

- (11) Left
- (12) Middle
- (13) Right

## Second Seat

- (21) Left
- (22) Middle
- (23) Right

## Third Seat

- (31) Left
- (32) Middle
- (33) Right

## Fourth Seat

- (41) Left
- (42) Middle
- (43) Right

- (97) Catastrophic
- (98) Other enclosed area (specify)

- (99) Unknown

## MAGNITUDE OF INTRUSION

- (1)  $\geq 3$  centimeters but  $< 8$  centimeters
- (2)  $\geq 8$  centimeters but  $< 15$  centimeters
- (3)  $\geq 15$  centimeters but  $< 30$  centimeters
- (4)  $\geq 30$  centimeters but  $< 46$  centimeters
- (5)  $\geq 46$  centimeters but  $< 61$  centimeters
- (6)  $\geq 61$  centimeters
- (7) Catastrophic
- (9) Unknown

## DOMINANT CRUSH DIRECTION

- (1) Vertical
- (2) Longitudinal
- (3) Lateral
- (7) Catastrophic
- (9) Unknown

	Location of Intrusion	Intruding Component	Magnitude of Intrusion	Dominant Crush Direction
1st	47. <u>2</u> <u>1</u>	48. <u>0</u> <u>8</u>	49. <u>4</u>	50. <u>3</u>
2nd	51. <u>2</u> <u>1</u>	52. <u>2</u> <u>8</u>	53. <u>3</u>	54. <u>3</u>
3rd	55. <u>2</u> <u>1</u>	56. <u>0</u> <u>7</u>	57. <u>2</u>	58. <u>3</u>
4th	59. _____	60. _____	61. _____	62. _____
5th	63. _____	64. _____	65. _____	66. _____
6th	67. _____	68. _____	69. _____	70. _____
7th	71. _____	72. _____	73. _____	74. _____
8th	75. _____	76. _____	77. _____	78. _____
9th	79. _____	80. _____	81. _____	82. _____
10th	83. _____	84. _____	85. _____	86. _____

# STEERING RIM/SPOKE DEFORMATION

(All Measurements Are in Centimeters)

COMPARISON VALUE

—

DAMAGE VALUE

=

DEFORMATION

—

=

—

=

—

=

—

=

**STEERING COLUMN**

## 87. Steering Column Type

1

- (1) Fixed column  
 (2) Tilt column  
 (3) Telescoping column  
 (4) Tilt and telescoping column  
 (8) Other column type (specify): \_\_\_\_\_

(9) Unknown

## 88. Blank

X X

(This variable is left blank so that numbering consistency can be maintained with the 1988-93 CDS.

## 89. Blank

X X X

(This variable is left blank so that numbering consistency can be maintained with the 1988-93 CDS.

## 90. Blank

X X X

(This variable is left blank so that numbering consistency can be maintained with the 1988-93 CDS.

## 91. Blank

X X X

(This variable is left blank so that numbering consistency can be maintained with the 1988-93 CDS.

## 92. Steering Rim/Spoke Deformation

φ φ

Code actual measured

deformation to the nearest centimeter

- (00) No steering rim deformation  
 (01-14) Actual measured value in centimeters  
 (15) 15 centimeters or more  
 (98) Observed deformation cannot be measured  
 (99) Unknown

## 93. Location of Steering Rim/Spoke Deformation

φ φ

(00) No steering rim deformation

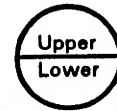
## Quarter Sections

- (01) Section A  
 (02) Section B  
 (03) Section C  
 (04) Section D



## Half Sections

- (05) Upper half of rim/spoke  
 (06) Lower half of rim/spoke  
 (07) Left half of rim/spoke  
 (08) Right half of rim/spoke



- (09) Complete steering wheel collapse  
 (10) Undetermined location  
 (99) Unknown

**INSTRUMENT PANEL**

## 94. Odometer Reading

1 8 φ ,000

\_\_\_\_\_ kilometers—Code to the nearest 1,000 kilometers

- (000) No odometer  
 (001) Less than 1,500 kilometers  
 (500) 499,500 kilometers or more  
 (999) Unknown

111.714 miles X 1.6093 = 179.748 kilometers

Source: INSPECTION

## 95. Instrument Panel Damage from Occupant Contact?

1

- (0) No  
 (1) Yes  
 (9) Unknown

## 96. Knee Bolsters Deformed from Occupant Contact?

8

- (0) No  
 (1) Yes  
 (8) Not present  
 (9) Unknown

## 97. Did Glove Compartment Door Open During Collision(s)?

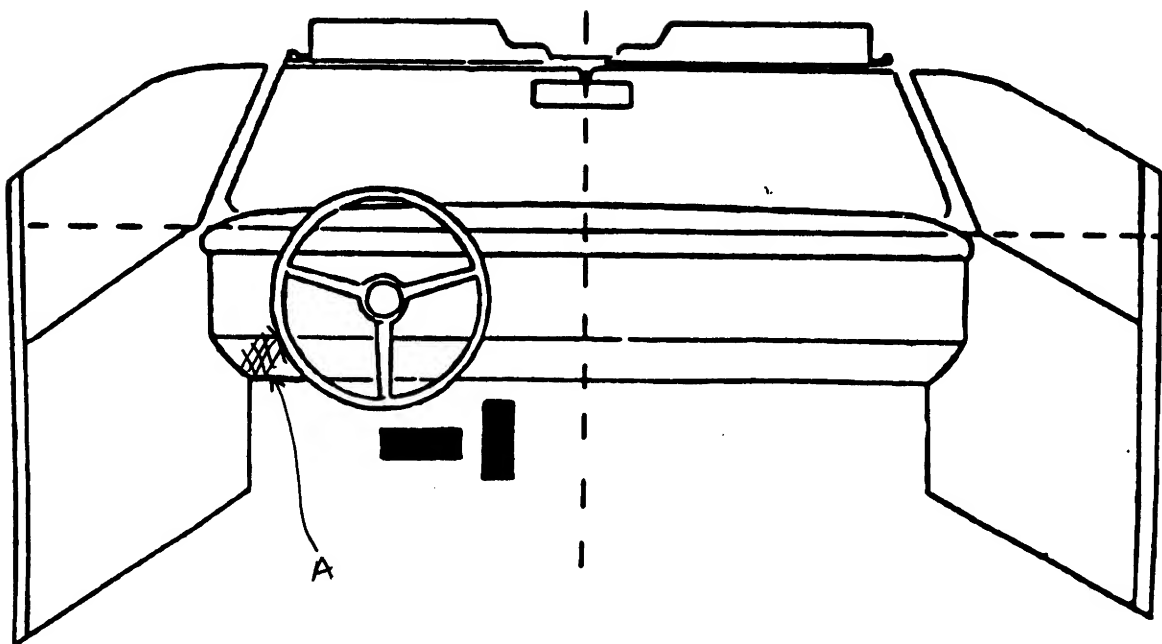
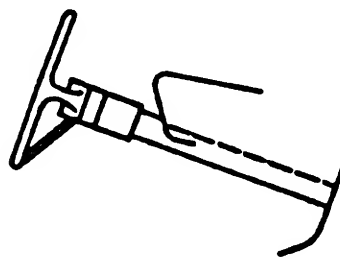
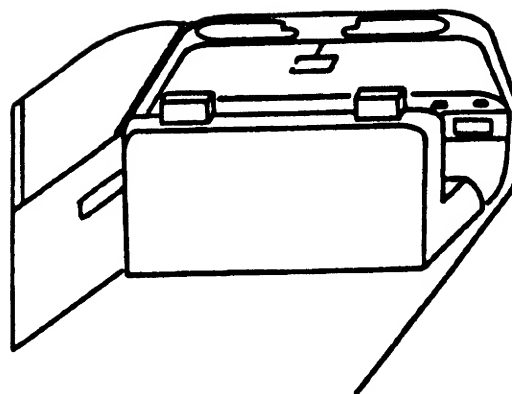
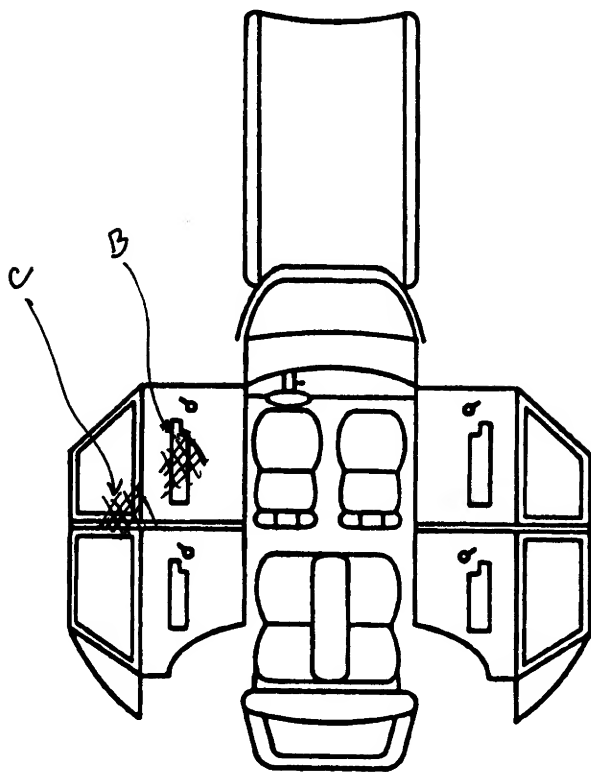
φ

- (0) No  
 (1) Yes  
 (8) Not present  
 (9) Unknown



## VEHICLE INTERIOR SKETCHES

Note area of ejection/entrapment



Sketch windshield contact(s) and the damaged area(s) on the instrument panel outline (e.g., radio, glove compartment, damage to instrument panel structure).  
 Cross hatch contact points, draw spider webs or use other annotation as may be appropriate.  
 Annotate the contacted area with a letter (begin with A) and list on the Points of Occupant Contact page.

## POINTS OF OCCUPANT CONTACT

Contact	Interior Component Contacted	Occupant No. If Known	Body Region If Known	Supporting Physical Evidence	Confidence Level of Contact Point
A	φ 9	φ 1	L. KNEE	DEFORMATION	2
B	2 1	φ 1	L. TORSO	DEFORMATION / BODY OIL	2
C	2 3	φ 1	HEAD	DEFORMATION / BODY OIL / HAIR	1
D					
E					
F					
G					
H					
I					
J					
K					
L					
M					
N					

## CODES FOR INTERIOR COMPONENTS

## FRONT

- (01) Windshield
- (02) Mirror
- (03) Sunvisor
- (04) Steering wheel rim
- (05) Steering wheel hub/spoke
- (06) Steering wheel (combination of codes 04 and 05)
- (07) Steering column, transmission selector lever, other attachment
- (08) Add on equipment (e.g., CB, tape deck, air conditioner)
- (09) Left instrument panel and below
- (10) Center instrument panel and below
- (11) Right instrument panel and below
- (12) Glove compartment door
- (13) Knee bolster
- (14) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, mirror, or steering assembly (driver side only)
- (15) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, or mirror (passenger side only)
- (16) Driver side air bag compartment cover
- (17) Passenger side air bag compartment cover
- (18) Windshield reinforced by exterior object (specify): \_\_\_\_\_
- (19) Other front object (specify): \_\_\_\_\_

## LEFT SIDE

- (20) Left side interior surface, excluding hardware or armrests
- (21) Left side hardware or armrest
- (22) Left A (A1/A2)-pillar

- (23) Left B-pillar

- (24) Other left pillar (specify): \_\_\_\_\_

- (25) Left side window glass or frame

- (26) Left side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.

- (27) Other left side object (specify): \_\_\_\_\_

- (28) Left side window sill

## RIGHT SIDE

- (30) Right side interior surface, excluding hardware or armrests

- (31) Right side hardware or armrest

- (32) Right A (A1/A2)-pillar

- (33) Right B-pillar

- (34) Other right pillar (specify): \_\_\_\_\_

- (35) Right side window glass or frame

- (36) Right side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B pillar, or roof side rail.

- (37) Other right side object (specify): \_\_\_\_\_

- (38) Right side window sill

## INTERIOR

- (40) Seat, back support

- (41) Belt restraint webbing/buckle

- (42) Belt restraint B-pillar attachment point

- (43) Other restraint system component (specify): \_\_\_\_\_

- (44) Head restraint system

- (45) Air bag (use codes "16" and "17" for injuries sustained from air bag compartment covers)

- (46) Other occupants (specify): \_\_\_\_\_

- (47) Interior loose objects

- (48) Child safety seat (specify): \_\_\_\_\_

- (49) Other interior object (specify): \_\_\_\_\_

## ROOF

- (50) Front header

- (51) Rear header

- (52) Roof left side rail

- (53) Roof right side rail

- (54) Roof or convertible top

## FLOOR

- (56) Floor (including toe pan)

- (57) Floor or console mounted transmission lever, including console

- (58) Parking brake handle

- (59) Foot controls including parking brake

## REAR

- (60) Backlight (rear window)

- (61) Backlight storage rack, door, etc.

- (62) Other rear object (specify): \_\_\_\_\_

## CONFIDENCE LEVEL OF CONTACT POINT

- (1) Certain
- (2) Probable
- (3) Possible
- (9) Unknown

## AUTOMATIC RESTRAINTS

**NOTES:** Encode the data for each applicable front seat position. The attribute for the variables may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

### AIR BAGS

		Left	Right
F I R S T	Availability/Function	ϕ	ϕ
	Deployment	ϕ	ϕ
	Failure	ϕ	ϕ

#### Air Bag System Availability/Function

- (0) Not equipped/not available  
(1) Air bag

#### Non-functional

- (2) Air bag disconnected (specify): \_\_\_\_\_  
(3) Air bag not reinstalled  
(9) Unknown

#### Air Bag System Deployment

- (0) Not equipped/not available  
(1) Air bag deployed during accident (as a result of impact)  
(2) Air bag deployed inadvertently just prior to accident  
(3) Air bag deployed, accident sequence undetermined  
(4) Nondeployed  
(5) Unknown if deployed  
(6) Air bag deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)  
(9) Unknown

#### Did Air Bag System Fail?

- (0) Not equipped/not available  
(1) No  
(2) Yes (specify): \_\_\_\_\_  
(9) Unknown

### AUTOMATIC BELTS

		Left	Right
F I R S T	Availability/Function	ϕ	ϕ
	Use	ϕ	ϕ
	Type	ϕ	ϕ
	Proper Use	ϕ	ϕ
	Failure Modes	ϕ	ϕ

#### Automatic (Passive) Belt System Availability/Function

- (0) Not equipped/not available  
(1) 2 point automatic belts  
(2) 3 point automatic belts  
(3) Automatic belts - type unknown

#### Non-functional

- (4) Automatic belts destroyed or rendered inoperative  
(9) Unknown

#### Automatic (Passive) Belt System Use

- (0) Not equipped/not available/destroyed or rendered inoperative  
(1) Automatic belt in use  
(2) Automatic belt not in use (manually disconnected, motorized track inoperative)  
(3) Automatic belt use unknown  
(9) Unknown

#### Automatic (Passive) Belt System Type

- (0) Not equipped/not available  
(1) Non-motorized system  
(2) Motorized system  
(9) Unknown

#### Proper Use of Automatic (Passive) Belt System

- (0) Not equipped/not available/not used  
(1) Automatic belt used properly  
(2) Automatic belt used properly with child safety seat

#### Automatic Belt Used Improperly

- (3) Automatic shoulder belt worn under arm  
(4) Automatic shoulder belt worn behind back  
(5) Automatic belt worn around more than one person  
(6) Lap portion of automatic belt worn on abdomen  
(7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify): \_\_\_\_\_  
(8) Other improper use of automatic belt system (specify): \_\_\_\_\_  
(9) Unknown

#### Automatic (Passive) Belt Failure Modes During Accident

- (0) Not equipped/not available/not in use  
(1) No automatic belt failure(s)  
(2) Torn webbing (stretched webbing not included)  
(3) Broken buckle or latchplate  
(4) Upper anchorage separated  
(5) Other anchorage separated (specify): \_\_\_\_\_  
(6) Broken retractor  
(7) Combination of above (specify): \_\_\_\_\_  
(8) Other automatic belt failure (specify): \_\_\_\_\_  
(9) Unknown

**MANUAL RESTRAINTS**

**NOTES:** Encode the applicable data for **each seat position** in the vehicle. The attribute for the variable may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

If a Child safety seat is present, encode the data on the back of this page.

If the vehicle has automatic restraints available, encode the appropriate data on the back of the previous page.

		Left	Center	Right
FIRST	Availability	4	φ	4
	Use	φ φ	φ φ	φ φ
	Failure Modes	φ	φ	φ
SECOND	Availability	3	3	3
	Use	φ φ	φ φ	φ φ
	Failure Modes	φ	φ	φ
THIRD	Availability			
	Use			
	Failure Modes			
OTHER	Availability			
	Use			
	Failure Modes			

**Manual (Active) Belt System Availability**

- (0) None available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available - type unknown

**Integral Belt Partially Destroyed**

- (6) Shoulder belt (lap belt destroyed/removed)
- (7) Lap belt (shoulder belt destroyed/removed)

(8) Other belt (specify): \_\_\_\_\_

(9) Unknown

**Manual (Active) Belt System Use**

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperable (specify): \_\_\_\_\_

- (02) Shoulder belt
- (03) Lap belt
- (04) Lap and shoulder belt
- (05) Belt used - type unknown

**(08) Other belt used (specify):**

- (12) Shoulder belt used with child safety seat
- (13) Lap belt used with child safety seat
- (14) Lap and shoulder belt used with child safety seat
- (15) Belt used with child safety seat - type unknown
- (18) Other belt used with child safety seat (specify): \_\_\_\_\_
- (99) Unknown if belt used

**Manual (Active) Belt Failure Modes During Accident**

- (0) No manual belt used or not available
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): \_\_\_\_\_
- (6) Broken retractor
- (7) Combination of above (specify): \_\_\_\_\_
- (8) Other manual belt failure (specify): \_\_\_\_\_
- (9) Unknown

## CHILD SAFETY SEAT FIELD ASSESSMENT

When a child safety seat is present enter the occupant's number in the first row and complete the column below the occupant's number using the codes listed below. Complete a column for each child safety seat present.

Occupant Number						
1. Type of Child Safety Seat						
2. Child Safety Seat Orientation						
3. Child Safety Seat Harness Usage			0			
4. Child Safety Seat Shield Usage						
5. Child Safety Seat Tether Usage						
6. Child Safety Seat Make/Model	Specify Below for Each Child Safety Seat					

### 1. Type of Child Safety Seat

- (0) No child safety seat
- (1) Infant seat
- (2) Toddler seat
- (3) Convertible seat
- (4) Booster seat
- (7) Other type child safety seat (specify): \_\_\_\_\_
- (8) Unknown child safety seat type
- (9) Unknown if child safety seat used

### 2. Child Safety Seat Orientation

- (00) No child safety seat
- Designed for Rear Facing for This Age/Weight
- (01) Rear facing
- (02) Forward facing
- (08) Other orientation (specify): \_\_\_\_\_
- (09) Unknown orientation

Designed for Forward Facing for This Age/Weight

- (11) Rear facing
- (12) Forward facing
- (18) Other orientation (specify): \_\_\_\_\_

- (19) Unknown orientation

Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight

- (21) Rear facing
- (22) Forward facing
- (28) Other orientation (specify): \_\_\_\_\_

- (29) Unknown orientation

- (99) Unknown if child safety seat used

### 3. Child Safety Seat Harness Usage

### 4. Child Safety Seat Shield Usage

- 5. Child Safety Seat Tether Usage
- Note: Options Below Are Used for Variables 3-5.
- (00) No child safety seat

Not Designed with Harness/Shield/Tether

- (01) After market harness/shield/tether added, not used
- (02) After market harness/shield/tether used
- (03) Child safety seat used, but no after market harness/shield/tether added
- (09) Unknown if harness/shield/tether added or used

Designed With Harness/Shield/Tether

- (11) Harness/shield/tether not used
- (12) Harness/shield/tether used
- (19) Unknown if harness/shield/tether used

Unknown If Designed With Harness/Shield/Tether

- (21) Harness/shield/tether not used
- (22) Harness/shield/tether used
- (29) Unknown if harness/shield/tether used

- (99) Unknown if child safety seat used

### 6. Child Safety Seat Make/Model

(Specify make/model and occupant number)

---



---



---



---

**HEAD RESTRAINTS/SEAT EVALUATION**

NOTES: Encode the applicable data for each seat position in the vehicle. The attribute for these variables may be found at the bottom of the page. Head restraint type/damage and seat type/performance should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

		Left	Center	Right
FIRST	Head Restraint Type/Damage	3	φ	3
	Seat Type	φ2	φφ	φ2
	Seat Performance	5	φ	1
	Seat Orientation	1	φ	1
SECOND	Head Restraint Type/Damage	φ	φ	φ
	Seat Type	φ5	φ5	φ5
	Seat Performance	1	1	1
	Seat Orientation	1	1	1
THIRD	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			
	Seat Orientation			
OTHER	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			
	Seat Orientation			

**Head Restraint Type/Damage by Occupant at This Occupant Position**

- (0) No head restraints
- (1) Integral — no damage
- (2) Integral — damaged during accident
- (3) Adjustable — no damage
- (4) Adjustable — damaged during accident
- (5) Add-on — no damage
- (6) Add-on — damaged during accident
- (8) Other Specify: \_\_\_\_\_

(9) Unknown \_\_\_\_\_

**Seat Type (this Occupant Position)**

- (00) Occupant not seated or no seat
- (01) Bucket
- (02) Bucket with folding back
- (03) Bench
- (04) Bench with separate back cushions
- (05) Bench with folding back(s)
- (06) Split bench with separate back cushions
- (07) Split bench with folding back(s)
- (08) Pedestal (i.e., column supported)
- (09) Other seat type (specify): \_\_\_\_\_

(10) Box mounted seat (i.e., van type)  
(99) Unknown

**Seat Performance (this Occupant Position)**

- (0) Occupant not seated or no seat
- (1) No seat performance failure(s)
- (2) Seat adjusters failed
- (3) Seat back folding locks or "seat back" failed specify: \_\_\_\_\_
- (4) Seat tracks/anchors failed
- (5) Deformed by impact of occupant
- (6) Deformed by passenger compartment intrusion (specify): \_\_\_\_\_

(7) Combination of above (specify): \_\_\_\_\_

(8) Other (specify): \_\_\_\_\_

(9) Unknown \_\_\_\_\_

**Seat Orientation (this Occupant Position)**

- (0) Occupant not seated or no seat
- (1) Forward facing seat
- (2) Rear facing seat
- (3) Side facing seat (inward)
- (4) Side facing seat (outward)
- (8) Other (specify): \_\_\_\_\_

(9) Unknown \_\_\_\_\_

**DESCRIBE ANY INDICATION OF ABNORMAL OCCUPANT POSTURE (I.E., UNUSUAL OCCUPANT CONTACT PATTERN)**

**EJECTION/ENTRAPMENT DATA**

Complete the following if the researcher has any indication that an occupant was either ejected from or entrapped in the vehicle. Code the appropriate data on the Occupant Assessment Form.

**EJECTION** No [☒] Yes [ ]

Describe indications of ejection and body parts involved in partial ejection(s):

---



---



---



---

Occupant Number						
Ejection						
(Note on Vehicle Interior Sketch) Ejection Area						
Ejection Medium						
Medium Status						

**Ejection**

- (1) Complete ejection
- (2) Partial ejection
- (3) Ejection, Unknown degree
- (9) Unknown

**Ejection Area**

- (1) Windshield
- (2) Left front
- (3) Right front
- (4) Left rear
- (5) Right rear
- (6) Rear

**(7) Roof**

- (8) Other area (e.g., back of pickup, etc.) (specify):

**(9) Unknown****Ejection Medium**

- (1) Door/hatch/tailgate
- (2) Nonfixed roof structure
- (3) Fixed glazing
- (4) Nonfixed glazing (specify):

**(5) Integral structure**

- (8) Other medium (specify):

**(9) Unknown****Medium Status (Immediately Prior to Impact)**

- (1) Open
- (2) Closed
- (3) Integral structure
- (9) Unknown

**ENTRAPMENT** No [☒] Yes [ ]

Describe entrapment mechanism: \_\_\_\_\_

---



---



---

Component(s): \_\_\_\_\_

(Note in vehicle interior diagram)

## OCCUPANT ASSESSMENT FORM

**Form Approved**  
**O.M.B. No. 2127-0021**

**NATIONAL ACCIDENT SAMPLING SYSTEM  
CRASHWORTHINESS DATA SYSTEM**

## OCCUPANT'S SEATING

1. Primary Sampling Unit Number \_\_\_\_\_
2. Case Number - Stratum DSI-93-AB-007
3. Vehicle Number 02
4. Occupant Number 01

## OCCUPANT'S CHARACTERISTICS

5. Occupant's Age 2 1  
Code actual age at time of accident.  
(00) Less than one year old (specify by month):  
  
(97) 97 years and older  
(99) Unknown
6. Occupant's Sex 1  
(1) Male  
(2) Female  
(9) Unknown
7. Occupant's Height 9 9 9  
Code actual height to the nearest  
centimeter.  
(999) Unknown  
  
\_\_\_\_\_ inches X 2.54 = \_\_\_\_\_ centimeters
8. Occupant's Weight 9 9 9  
Code actual weight to the nearest  
kilogram.  
(999) Unknown  
  
\_\_\_\_\_ pounds X .4536 = \_\_\_\_\_ kilograms
9. Occupant's Role 1  
(1) Driver  
(2) Passenger  
(9) Unknown

10. Occupant's Seat Position \_ / \_  
*Front Seat*  
 (11) Left side  
 (12) Middle  
 (13) Right side  
 (14) Other (specify): \_\_\_\_\_  
 (15) On or in the lap of another occupant

### ***Second Seat***

- (21) Left side  
(22) Middle  
(23) Right side  
(24) Other (specify): \_\_\_\_\_  
(25) On or in the lap of another occupant

### Third Seat

- (31) Left side  
(32) Middle  
(33) Right side  
(34) Other (specify): \_\_\_\_\_  
(35) On or in the lap of another occupant

### ***Fourth Seat***

- (41) Left side  
(42) Middle  
(43) Right side  
(44) Other (specify): \_\_\_\_\_  
(45) On or in the lap of another occupant

- (97) In or on unenclosed area  
(98) Other seat (specify): \_\_\_\_\_  
(99) Unknown

- |                        |   |
|------------------------|---|
| 11. Occupant's Posture | 9 |
| (0) Normal posture     |   |

### ***Abnormal posture***

- (1) **Kneeling or standing on seat**
- (2) **Lying on or across seat**
- (3) **Kneeling, standing or sitting in front of seat**
- (4) **Sitting sideways or turned to talk with another occupant or to look out a rear window**
- (5) **Sitting on a console**
- (6) **Lying back in a reclined seat position**
- (7) **Bracing with feet or hands on a surface in front of seat**
- (8) **Other abnormal posture (specify):**
- (9) **Unknown**



## EJECTION/ENTRAPMENT

12. Ejection φ

- (0) No ejection
- (1) Complete ejection
- (2) Partial ejection
- (3) Ejection, unknown degree
- (9) Unknown

13. Ejection Area φ

- (0) No ejection
- (1) Windshield
- (2) Left front
- (3) Right front
- (4) Left rear
- (5) Right rear
- (6) Rear
- (7) Roof
- (8) Other area (e.g., back of pickup, etc.)  
(specify): \_\_\_\_\_
- (9) Unknown

14. Ejection Medium φ

- (0) No ejection
- (1) Door/hatch/tailgate
- (2) Nonfixed roof structure
- (3) Fixed glazing
- (4) Nonfixed glazing (specify): \_\_\_\_\_
- (5) Integral structure
- (8) Other medium (specify): \_\_\_\_\_
- (9) Unknown

15. Medium Status (Immediately Prior To Impact) φ

- (0) No ejection
- (1) Open
- (2) Closed
- (3) Integral structure
- (9) Unknown

16. Entrapment φ

(NOTE: Entrapped means that part of the person was in the vehicle and mechanically restrained; jammed doors and immobilizing injuries by themselves are not sufficient to constitute entrapment.)

- (0) Not entrapped
- (1) Entrapped
- (9) Unknown

## RESTRAINT SYSTEM EVALUATION

17. Manual (Active) Belt System Availability 4

- (0) None available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available—type unknown

*Integral Belt Partially Destroyed*

- (6) Shoulder belt (lap belt destroyed/removed)
- (7) Lap belt (shoulder belt destroyed/removed)

(8) Other belt (specify): \_\_\_\_\_

(9) Unknown \_\_\_\_\_

18. Manual (Active) Belt System Use φ φ

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperative (specify): \_\_\_\_\_

(02) Shoulder belt \_\_\_\_\_

(03) Lap belt \_\_\_\_\_

(04) Lap and shoulder belt \_\_\_\_\_

(05) Belt used—type unknown \_\_\_\_\_

(08) Other belt used (specify): \_\_\_\_\_

(12) Shoulder belt used with child safety seat \_\_\_\_\_

(13) Lap belt used with child safety seat \_\_\_\_\_

(14) Lap and shoulder belt used with child safety seat \_\_\_\_\_

(15) Belt used with child safety seat—type unknown \_\_\_\_\_

(18) Other belt used with child safety seat (specify): \_\_\_\_\_

(99) Unknown if belt used \_\_\_\_\_

19. Proper Use of Manual (Active) Belts φ

- (0) None used or not available
- (1) Belt used properly
- (2) Belt used properly with child safety seat

*Belt Used Improperly*

- (3) Shoulder belt worn under arm
- (4) Shoulder belt worn behind back or seat
- (5) Belt worn around more than one person
- (6) Lap belt worn on abdomen
- (7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify): \_\_\_\_\_

(8) Other improper use of manual belt system (specify): \_\_\_\_\_

(9) Unknown \_\_\_\_\_

20. Manual (Active) Belt Failure Modes During Accident φ

- (0) No manual belt used
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): \_\_\_\_\_

(6) Broken retractor \_\_\_\_\_

(7) Combination of above (specify): \_\_\_\_\_

(8) Other manual belt failure (specify): \_\_\_\_\_

(9) Unknown \_\_\_\_\_

21. Air Bag System Availability/Function φ

- (0) Not equipped/not available
- (1) Air bag

*Non-functional*

(2) Air bag disconnected (specify): \_\_\_\_\_

(3) Air bag not reinstalled \_\_\_\_\_

(9) Unknown \_\_\_\_\_

22. Air Bag System Deployment φ

- (0) Not equipped/not available
- (1) Air bag deployed during accident (as a result of impact)
- (2) Air bag deployed inadvertently just prior to accident
- (3) Air bag deployed, accident sequence undetermined
- (4) Nondeployed
- (5) Unknown if deployed
- (6) Air bag deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
- (9) Unknown

23. Are There Indications of Air Bag System Failure? φ

(0) Not equipped/not available

(1) No

(2) Yes (specify): \_\_\_\_\_

(9) Unknown \_\_\_\_\_

Note: See Variables 44 through 48 (Page 5) for Information on Automatic Belts

24. Police Reported Restraint Use φ

- (0) None used
- (1) Police did not indicate restraint use
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt used, type not specified
- (6) Child safety seat
- (7) Other or automatic restraint (specify): \_\_\_\_\_

(8) Restrained, type unknown \_\_\_\_\_

(9) Police indicated "unknown" \_\_\_\_\_

## HEAD RESTRAINT AND SEAT EVALUATION

25. Head Restraint Type/Damage by Occupant  
at This Occupant Position3

- (0) No head restraints
- (1) Integral—no damage
- (2) Integral—damaged during accident
- (3) Adjustable—no damage
- (4) Adjustable—damaged during accident
- (5) Add-on—no damage
- (6) Add-on—damaged during accident
- (8) Other (specify):

(9) Unknown

26. Seat Type (this Occupant Position)

φ 2

- (00) Occupant not seated or no seat
- (01) Bucket
- (02) Bucket with folding back
- (03) Bench
- (04) Bench with separate back cushions
- (05) Bench with folding back(s)
- (06) Split bench with separate back cushions
- (07) Split bench with folding back(s)
- (08) Pedestal (i.e., column supported)
- (09) Other seat type (specify):

(10) Box mounted seat (i.e., van type)

(99) Unknown

27. Seat Performance (this Occupant Position)

5

- (0) Occupant not seated or no seat
- (1) No seat performance failure(s)
- (2) Seat adjusters failed
- (3) Seat back folding locks or "seat back" failed
- (4) Seat track/anchors failed
- (5) Deformed by impact of occupant
- (6) Deformed by passenger compartment intrusion (specify):

(7) Combination of above (specify):

(8) Other (specify):

(9) Unknown

## CHILD SAFETY SEAT

28. Child Safety Seat Make/Model φ φ φ

(000) No child safety seat

Applicable codes are found in your NASS CDS  
Data Collection, Coding and Editing

(950) Built-in child safety seat

(997) Other make/model (specify):  
\_\_\_\_\_

(998) Unknown make/model

(999) Unknown if child safety seat used

29. Type of Child Safety Seat φ

(0) No child safety seat

(1) Infant seat

(2) Toddler seat

(3) Convertible seat

(4) Booster seat

(7) Other type child safety seat (specify):  
\_\_\_\_\_

(8) Unknown child safety seat type

(9) Unknown if child safety seat used

30. Child Safety Seat Orientation φ φ

(00) No child safety seat

*Designed for Rear Facing for This Age/Weight*

(01) Rear facing

(02) Forward facing

(08) Other orientation (specify):  
\_\_\_\_\_

(09) Unknown orientation

*Designed For Forward Facing for This Age/Weight*

(11) Rear facing

(12) Forward facing

(18) Other orientation (specify):  
\_\_\_\_\_

(19) Unknown orientation

*Unknown Design or Orientation For This  
Age/Weight, or Unknown Age/Weight*

(21) Rear facing

(22) Forward facing

(28) Other orientation (specify):  
\_\_\_\_\_

(29) Unknown orientation

(99) Unknown if child safety seat used

31. Child Safety Seat Harness Usage φ φ32. Child Safety Seat Shield Usage φ φ33. Child Safety Seat Tether Usage φ φNote: Options below applicable to  
Variables OA31-OA33.

(00) No child safety seat

*Not Designed With Harness/Shield/Tether*(01) After market harness/shield/tether  
added, not used

(02) After market harness/shield/tether used

(03) Child safety seat used, but no after market  
harness/shield/tether added(09) Unknown if harness/shield/tether  
added or used*Designed With Harness/Shield/Tether*

(11) Harness/shield/tether not used

(12) Harness/shield/tether used

(19) Unknown if harness/shield/tether used

*Unknown If Designed With Harness/Shield/Tether*

(21) Harness/shield/tether not used

(22) Harness/shield/tether used

(29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used

**INJURY CONSEQUENCES**34. Injury Severity (Police Rating) 2

- (0) O - No injury
- (1) C - Possible injury
- (2) B - Nonincapacitating injury
- (3) A - Incapacitating injury
- (4) K - Killed
- (5) U - Injury, severity unknown
- (6) Died prior to accident
- (9) Unknown

35. Treatment - Mortality 2

- (0) No treatment
- (1) Fatal
- (2) Fatal - ruled disease (specify):

*Nonfatal*

- (3) Hospitalization
- (4) Transported and released
- (5) Treatment at scene - nontransported
- (6) Treatment later
- (8) Treatment - other (specify):
- (9) Unknown

36. Type Of Medical Facility (for Initial Treatment) 2

- (0) Not treated at a medical facility
- (1) Trauma center
- (2) Hospital
- (3) Medical clinic
- (4) Physician's office
- (5) Treatment later at medical facility
- (8) Other (specify):
- (9) Unknown

37. Hospital Stay 2 2

(00) Not Hospitalized

Code the number of days (up through 60) that the occupant stayed in hospital.

- (61) 61 days or more
- (99) Unknown

99. Case Occupant φ

- (0) Not the Case Occupant
- (1) This is the Case Occupant
- (2) This is the Case Occupant in another case.

38. Working Days Lost 2 2

Code the number of days (up through 60) that the occupant lost from work due to the accident

- (00) No working days lost
- (61) 61 days or more
- (62) Fatally injured
- (97) Not working prior to accident
- (99) Unknown

**STOP - GO TO VARIABLE 44 ON PAGE 7****VARIABLES 39 THROUGH 43 ARE COMPLETED BY THE ZONE CENTER**39. Time to Death φ φ

Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 + n up through 30 days = 60)

- (00) Not fatal
- (96) Fatal - ruled disease
- (99) Unknown

40. 1st Medically Reported Cause of Death φ φ41. 2nd Medically Reported Cause of Death φ φ42. 3rd Medically Reported Cause of Death φ φ

Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death

- (00) Not fatal or no additional causes
- (96) Mode of death given but specific injuries are not linked to cause of death. (specify):

(97) Other result (includes fatal ruled disease) (specify):

(99) Unknown

43. Number of Recorded Injuries for This Occupant 2 7

Code the actual number of injuries recorded for this occupant.

- (00) No recorded injuries
- (97) Injured, details unknown
- (99) Unknown if injured

**AUTOMATIC BELT SYSTEM**44. Automatic (Passive) Belt System Availability/Function φ

- (0) Not equipped/not available
- (1) 2 point automatic belts
- (2) 3 point automatic belts
- (3) Automatic belts - type unknown

*Non-functional*

- (4) Automatic belts destroyed or rendered inoperative
- (9) Unknown

45. Automatic (Passive) Belt System Use φ

- (0) Not equipped/not available/destroyed or rendered inoperative
- (1) Automatic belt in use
- (2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify):

- (3) Automatic belt use unknown
- (9) Unknown

46. Automatic (Passive) Belt System Type φ

- (0) Not equipped/not available
- (1) Non-motorized system
- (2) Motorized system
- (9) Unknown

47. Proper Use of Automatic (Passive) Belt System φ

- (0) Not equipped/not available/not used
- (1) Automatic belt used properly
- (2) Automatic belt used properly with child safety seat

*Automatic Belt Used Improperly*

- (3) Automatic shoulder belt worn under arm
- (4) Automatic shoulder belt worn behind back
- (5) Automatic belt worn around more than one person
- (6) Lap portion of automatic belt worn on abdomen
- (7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify):

- (8) Other improper use of automatic belt system (specify):
- (9) Unknown

48. Automatic (Passive) Belt Failure Modes During Accident φ

- (0) Not equipped/not available/not in use
- (1) No automatic belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify):

- (6) Broken retractor
- (7) Combination of above (specify):
- (8) Other automatic belt failure (specify):

- (9) Unknown

49. Seat Orientation (this Occupant Position) 1

- (0) Occupant not seated or no seat
- (1) Forward facing seat
- (2) Rear facing seat
- (3) Side facing seat (inward)
- (4) Side facing seat (outward)
- (8) Other (specify):

- (9) Unknown

**STOP - VARIABLES 50 THROUGH 52 ARE COMPLETED BY THE ZONE CENTER****TRAUMA DATA**50. Glasgow Coma Scale (GCS) Score 9 1  
(at Medical Facility)

- (00) Not injured
- (01) Injured - not treated at medical facility
- (02) No GCS Score at medical facility
- (03-15) Code the actual value of the initial GCS Score recorded at medical facility.
- (97) Injured, details unknown
- (99) Unknown if injured

51. Was the Occupant Given Blood? 9

- (1) No - blood not given
- (2) Yes - blood given

(specify units):  
(9) Unknown if blood given52. Arterial Blood Gases (ABG) - HCO<sub>3</sub> 9 1

- (00) Not injured
- (01) Injured, ABGs not measured or reported
- (02-50) Code the actual value of the HCO<sub>3</sub>
- (96) ABGs reported, HCO<sub>3</sub> unknown
- (97) Injured, details unknown
- (99) Unknown if injured

ARE ALL APPLICABLE MEDICAL RECORDS INCLUDED WITH INITIAL SUBMISSION?

NO [X] YES [ ]

UPDATE CANDIDATE?

NO [X] YES [ ]

## SUMMARY OF CRASHPC RESULTS (USING SPINOUT)

## CRASH3 RECONSTRUCTION

SPEED CHANGE (DAMAGE)	VEH #1	TOTAL(KPH)	LONG.(KPH)	LAT.(KPH)	ANG.(DEG)
	VEH #1	16.3	-16.0	2.8	-10.0
	VEH #2	25.8	-3.1	25.6	-83.0

ENERGY DISSIPATED BY DAMAGE VEH#1: 34952.7 JOULES      VEH#2: 48023.1 JOULES

SUMMARY OF DAMAGE DATA  
VEHICLE # 1(\* INDICATES DEFAULT VALUE)  
VEHICLE # 2

TYPE-----CATEGORY 4  
 STIFFNESS---CATEGORY 5  
 WEIGHT----- 1926.0 KGS  
 CDC-----12FDEW1  
 L----- 175.3 CM.  
 C1----- 32.0 CM.  
 C2----- 24.6 CM.  
 C3----- 20.3 CM.  
 C4----- 6.9 CM.  
 C5----- 5.6 CM.  
 C6----- 9.1 CM.  
 D----- .0 CM.  
 RHO----- 1.00 \*

TYPE-----CATEGORY 3  
 STIFFNESS---CATEGORY 3  
 WEIGHT----- 1213.4 KGS  
 CDC-----09LZEW3  
 L----- 152.4 CM.  
 C1----- 18.8 CM.  
 C2----- 32.5 CM.  
 C3----- 41.1 CM.  
 C4----- 44.2 CM.  
 C5----- 24.1 CM.  
 C6----- .0 CM.  
 D----- -132.6 CM.  
 RHO----- 1.00 \*

ANG----- -10.0 DEG.  
 D'----- -27.0 CM.

ANG----- -83.0 DEG.  
 D'----- -138.9 CM.

## DIMENSIONS AND INERTIAL PROPERTIES

A1 = 138.9 CM.  
 B1 = 150.4 CM.  
 TR1 = 157.0 CM.  
 I1 = 466613.1 NEWT-SEC\*\*2-CM  
 M1 = 19.333 NEWT-SEC\*\*2/CM  
 XF1 = 251.0 CM.  
 XR1 = -289.6 CM.  
 YS1 = 97.8 CM.

A2 = 130.3 CM.  
 B2 = 141.0 CM.  
 TR2 = 149.6 CM.  
 I2 = 261200.5 NEWT-SEC\*\*2-CM  
 M2 = 12.180 NEWT-SEC\*\*2/CM  
 XF2 = 228.1 CM.  
 XR2 = -270.3 CM.  
 YS2 = 92.2 CM.

## SUMMARY OF CRASHPC RESULTS (USING SPINOUT)

## CRASH3 RECONSTRUCTION

SPEED CHANGE (DAMAGE)	VEH #1	TOTAL(MPH)	LONG.(MPH)	LAT.(MPH)	ANG.(DEG)
	VEH #1	10.1	-10.0	1.8	-10.0
	VEH #2	16.1	-2.0	15.9	-83.0

ENERGY DISSIPATED BY DAMAGE VEH#1: 25776.4 FT-LB VEH#2: 35415.3 FT-LB

SUMMARY OF DAMAGE DATA  
VEHICLE # 1(\* INDICATES DEFAULT VALUE)  
VEHICLE # 2

TYPE-----CATEGORY 4  
 STIFFNESS---CATEGORY 5  
 WEIGHT----- 4246.0 LBS.  
 CDC-----12PDEW1  
 L----- 69.0 IN.  
 C1----- 12.6 IN.  
 C2----- 9.7 IN.  
 C3----- 8.0 IN.  
 C4----- 2.7 IN.  
 C5----- 2.2 IN.  
 C6----- 3.6 IN.  
 D----- .0  
 RHO----- 1.00 \*

TYPE-----CATEGORY 3  
 STIFFNESS---CATEGORY 3  
 WEIGHT----- 2675.0 LBS.  
 CDC-----09LZEW3  
 L----- 60.0 IN.  
 C1----- 7.4 IN.  
 C2----- 12.8 IN.  
 C3----- 16.2 IN.  
 C4----- 17.4 IN.  
 C5----- 9.5 IN.  
 C6----- .0 IN.  
 D----- -52.2  
 RHO----- 1.00 \*

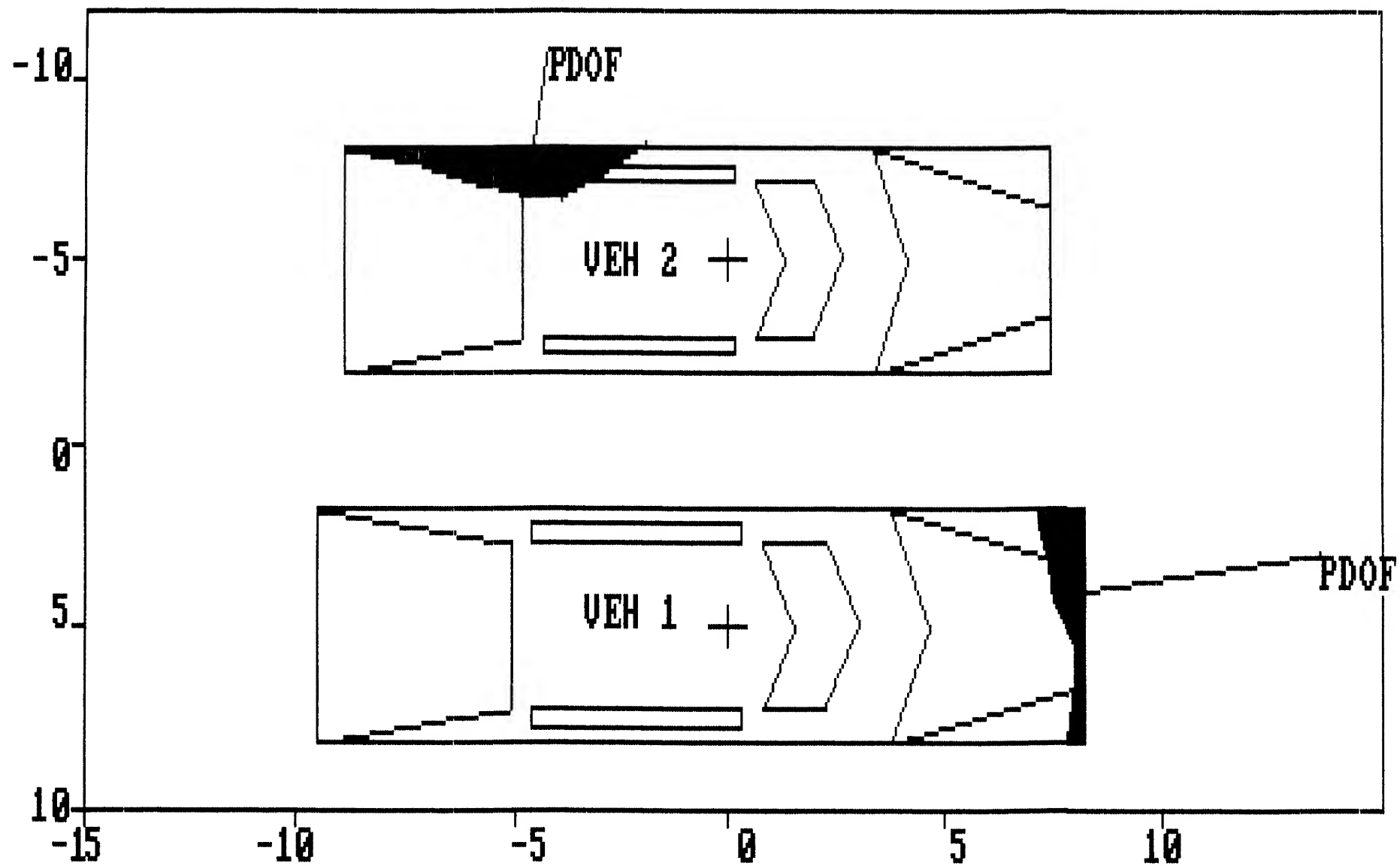
ANG----- -10.0 DEG.  
 D'----- -10.6 IN.

ANG----- -83.0 DEG.  
 D'----- -54.7 IN.

## DIMENSIONS AND INERTIAL PROPERTIES

A1	=	54.7	IN.	A2	=	51.3	IN.
B1	=	59.2	IN.	B2	=	55.5	IN.
TR1	=	61.8	IN.	TR2	=	58.9	IN.
I1	=	41300.8	LB-SEC**2-IN	I2	=	23119.3	LB-SEC**2-IN
M1	=	11.040	LB-SEC**2/IN	M2	=	6.955	LB-SEC**2/IN
XF1	=	98.8	IN.	XF2	=	89.8	IN.
XR1	=	-114.0	IN.	XR2	=	-106.4	IN.
YS1	=	38.5	IN.	YS2	=	36.3	IN.





DAMAGE DESCRIPTION

# CRASHPC PROGRAM SUMMARY

(All Measurements in Metric)

NATIONAL ACCIDENT SAMPLING SYSTEM  
CRASHWORTHINESS DATA SYSTEM

DSI-93-AB-φφ7

Case No.-Stratum

φ 1

Accident Event  
Sequence No.

9 3

Date (Month, day, year) of Run

Unit

## C Vehicle Identification

Vehicle	Year	Make	Model	NASS Veh. No.
Vehicle 1	199φ	LINCOLN	TOWNCAR	φ 1
Vehicle 2	1979	FORD	MUSTANG II	φ 2

## GENERAL INFORMATION

VEHICLE 1		VEHICLE 2	
Size	4	Size	3
Weight		Weight	
1826 + 14φ + φ = 1 9 2 6 kg		1141 + 72 + φ = 1 2 1 3 kg	
Curb Occupant(s) Cargo		Curb Occupant(s) Cargo	
CDC 1 2 F D E W 1		CDC φ 9 L Z E W 3	
PDOF (-180 to +180) ⊖ φ 1 φ °		PDOF (-180 to +180) ⊖ φ 8 3 °	
Stiffness 5		Stiffness 3	

## SCENE INFORMATION

Rest and Impact Positions [ ] No, Go To Damage Information [ ] Yes

VEHICLE 1		VEHICLE 2	
Rest Position	X _____ m Y _____ m PSI _____ °	Rest Position	X _____ m Y _____ m PSI _____ °
Impact Position	X _____ m Y _____ m PSI _____ °	Impact Position	X _____ m Y _____ m PSI _____ °
Slip Angle(-180 to +180) _____ °		Slip Angle (-180 to +180) _____ °	

## VEHICLE MOTION

Sustained Contact [ ] No [ ] Yes

VEHICLE 1		VEHICLE 2	
Skidding (Rotation) [ ] No [ ] Yes		Skidding (Rotation) [ ] No [ ] Yes	
Skidding Stop Before Rest [ ] No [ ] Yes		Skidding Stop Before Rest [ ] No [ ] Yes	
End of Rotation Position X _____ m Y _____ m PSI _____ °		End of Rotation Position X _____ m Y _____ m PSI _____ °	
Curved Path [ ] No [ ] Yes		Curved Path [ ] No [ ] Yes	
Point on Path X _____ m Y _____ m		Point on Path X _____ m Y _____ m	
Rotation Direction [ ] None [ ] CW [ ] CCW		Rotation Direction [ ] None [ ] CW [ ] CCW	
Rotation >360° [ ] No [ ] Yes		Rotation >360° [ ] No [ ] Yes	

## FRICTION INFORMATION

Coefficient of Friction . \_\_\_\_\_

Rolling Resistance Option \_\_\_\_\_

## Vehicle 1 Rolling Resistance

LF \_\_\_\_\_ RF \_\_\_\_\_

LR \_\_\_\_\_ RR \_\_\_\_\_

## Vehicle 2 Rolling Resistance

LF \_\_\_\_\_ RF \_\_\_\_\_

LR \_\_\_\_\_ RR \_\_\_\_\_

## TRAJECTORY INFORMATION

Trajectory Data [ ] No [ ] Yes

*If No, Go To Damage Information*

## Vehicle 1 Steer Angles

LF \_\_\_\_\_ ° RF \_\_\_\_\_ °

LR \_\_\_\_\_ ° RR \_\_\_\_\_ °

## Vehicle 2 Steer Angles

LF \_\_\_\_\_ ° RF \_\_\_\_\_ °

LR \_\_\_\_\_ ° RR \_\_\_\_\_ °

Terrain Boundary [ ] No [ ] Yes

## First Point

X \_\_\_\_\_ m Y \_\_\_\_\_ m

## Second Point

X \_\_\_\_\_ m Y \_\_\_\_\_ m

Secondary Coefficient of Friction . \_\_\_\_\_

## DAMAGE INFORMATION

## VEHICLE 1

Damage Length L 1 7 5 cmCrush Depths C<sub>1</sub> 0 3 2 cmC<sub>2</sub> 0 2 5 cmC<sub>3</sub> 0 2 0 cmC<sub>4</sub> 0 0 7 cmC<sub>5</sub> 0 0 6 cmC<sub>6</sub> 0 0 9 cmDamage Offset D  $\pm$  0 0 0 cm

## VEHICLE 2

Damage Length L 1 5 2 cmCrush Depths C<sub>1</sub> 0 1 9 cmC<sub>2</sub> 0 3 3 cmC<sub>3</sub> 0 4 1 cmC<sub>4</sub> 0 4 4 cmC<sub>5</sub> 0 2 4 cmC<sub>6</sub> 0 0 0 cmDamage Offset D  $\oplus$  1 3 3 cm

IF THIS COMMON IMPACT WAS WITH A MOTOR VEHICLE NOT IN TRANSPORT, FILL IN THE INFORMATION BELOW.

Model Year: \_\_\_\_\_

Make: \_\_\_\_\_

Model: \_\_\_\_\_

VIN: \_\_\_\_\_

The Weight, CDC, Scene Data and Damage Information for this vehicle should be recorded above.

Complete and ATTACH the appropriate vehicle damage sketch and dimensions to the Form.

# AIRBAG SUPPLEMENT

1

## ACCIDENT SUMMARY

1. Accident Date: ~~XXXXXX~~-93

2. Police Investigated

- (1) Yes
- (2) No
- (3) Unknown

Agency: STATE POLICE  
City: ~~XXXXXX~~, N.C.  
County: ~~XXXXXX~~

3. General Locality

- (1) Freeway, Limited Access
- (2) Urban (City)
- (3) Urban-Rural (mixed)
- (4) Rural, Fields

4. Configuration (First Harm)

- (0) Struck Object or Ped
- (1) Rear-End
- (2) Head-On
- (3) Rear-to-Rear
- (4) Angle
- (5) Sideswipe-Same Direction
- (6) Sideswipe-Opposite Dir.
- (7) Noncollision
- (8) Nonimpact Deployment
- (9) Unknown

5. Fire Involved

- (0) None
- (1) Airbag Vehicle
- (2) Other Vehicle
- (3) Both Vehicles
- (9) Unknown

6. Vehicles Involved

7. Persons Involved

8. Injured Persons

9. Maximum AIS in Accident

## AIRBAG VEHICLE INSPECTION

10. Date Vehicle Inspected: ~~XXXXXX~~-73

11. Reason Vehicle Not Inspected

- (0) Not Required
- (1) Inspection Completed
- (2) Cannot be Located
- (3) Repaired or Destroyed
- (5) Refusal or Impounded
- (7) Other:

12. Impact Data Obtained

- (0) No Data Obtained
- (1) CDC Only
- (2) Crush Profile Only
- (3) Trajectory Data Only
- (4) CDC and Crush Profile
- (5) CDC and Trajectory
- (6) Crush and Trajectory
- (7) CDC, Crush, and Trajectory

13. Basis of Delta-V

- (0) Not Computed (Unknown why)
- (1) CRASH - Damage Only
- (2) CRASH - Damage + Traj
- (3) OLDMISS
- (4) POLES
- (5) Unknown Basis
- (6) One Vehicle Beyond Scope
- (7) Collision Beyond Scope
- (8) Insufficient Data

## VEHICLE HISTORY

14. Prior Impacts for AB Vehicle?

- (1) Yes
- (2) No
- (9) Unknown

15. Prior AB Maintenance or Service

- (1) Yes, (2) No, (9) Unknown

Describe:

# AIRBAG SUPPLEMENT

2

## AIRBAG VEHICLE

Fleet: *NONE*

VIN: *1LNLM81F5LYxxxxxx*

Mileage: *123,827 km (76,959 mi)*

## SYSTEM READINESS LAMP

16. Pre-Impact Lamp Condition 1
- (1) Functioning/Proved Out
- (2) Inoperative
- (9) Unknown
17. Driver's Report of Pre-Impact Flashing φφ
- (00) No Flashing Reported
- (01) Continuous Flashing
- (02) Number of Flashes: \_\_\_\_\_
- (11)
- (12) Constant Light
- (19) Flashing, Unknown Number
- (88) Not Applicable, System Removed
- (99) Unknown
18. Period of Pre-Impact Flashing φ
- (0) No Flashing
- (1) Same Day as Impact
- (2) Prior Day
- (3) Prior Two Days
- (4) Prior Week
- (5) Prior Month
- (6) Over One Month
- (9) Unknown
19. Post-Impact Lamp Condition 1
- (1) Functioning/Proved Out
- (2) Inoperative
- (9) Unknown
20. Post-Impact Flashing φ7
- (00) No Flashing Reported
- (01) Continuous Flashing
- (02) Number of Flashes: *φ7*
- (11)
- (12) Constant Light
- (19) Flashing, Unknown Number
- (88) Not Applicable, System Removed
- (99) Unknown

21. Airbag Vehicle First Harmful Event 13
- (01) Fire or explosion
- (02) Immersion
- (03) Gas Inhalation
- (04) Fell from vehicle
- (05) Injured in vehicle
- (06) Other noncollision (specify):
- (07) Overturn
- (08) Jackknife
- COLLISION WITH:
- (09) Pedestrian
- (10) Pedalcyclist
- (11) Railway train
- (12) Animal
- (13) Motor vehicle in transport (same roadway)
- (14) Motor vehicle in transport (other roadway)
- (15) Parked motor vehicle
- (16) Other type nonmotorist (specify):
- (17) Thrown or falling object
- (18) Boulder
- COLLISION WITH FIXED OBJECT
- (20) Building
- (21) Impact attenuator/crash cushion
- (22) Bridge pier or abutment
- (23) Bridge parapet end
- (24) Bridge rail
- (25) Guardrail
- (26) Concrete traffic barrier
- (27) Median barrier
- (28) Other longitudinal barrier (specify):
- (29) Highway/traffic sign post
- (30) Overhead sign support
- (31) Luminaire/light support
- (32) Utility pole
- (33) Other post, pole, or support
- (34) Culvert
- (35) Curb
- (36) Ditch
- (37) Embankment-earth
- (38) Embankment-rock, stone, or concrete
- (39) Fence
- (40) Wall
- (41) Fire hydrant
- (42) Shrubbery
- (43) Tree
- (44) Other fixed object (specify):
- (45) Pavement surface irregularity
- (99) Unknown

# AIRBAG SUPPLEMENT

3

## AIRBAG VEHICLE IMPACT SUMMARY

22. Vehicle Role 3
- (0) Noncollision
  - (1) Striking unit
  - (2) Struck unit
  - (3) Both striking and struck
  - (9) Unknown
23. Manner of Leaving Scene 2
- (1) Driven
  - (2) Towed-due to damage
  - (3) Towed-not for damage
  - (4) Towed-details unknown
  - (5) Abandoned
  - (9) Unknown
24. Number of Impact Events 1
- (8) 8 or more
  - (9) Unknown
25. Rollover φ
- (0) No rollover
  - (1) First event
  - (2) Subsequent event
  - (3) Yes, Unknown event
  - (9) Unknown
26. Override/Underride φ
- (0) No override/underride
  - (1) Override - 1st CDC
  - (2) Override - Other CDC
  - (3) Underride - 1st CDC
  - (4) Underride - Other CDC
  - (9) Unknown

## AIRBAG VEHICLE DAMAGE

CODES: (1) Yes, (2) No, (9) Unknown

27. Left Front Fender Damage 1
28. Right Front Fender Damage 2
29. Center Top of Grille Damage 1

## FRONT BUMPER E.A. STATUS

30. Left 3
31. Right 1
- (1) Normal
  - (2) Extended
  - (3) Partial Compression
  - (4) Complete Compression
  - (5) Not Applicable
  - (9) Unknown

## FIRST AIRBAG VEHICLE IMPACT:

32. Configuration 4
- (0) Struck Object or Ped
  - (1) Rear-End
  - (2) Head-On
  - (3) Rear-to-Rear
  - (4) Angle
  - (5) Sideswipe-Same Direction
  - (6) Sideswipe-Opposite Dir.
  - (7) Noncollision
  - (8) Nonimpact Deployment
  - (9) Unknown
33. CDC: 12 FDEW 1
34. Object Contacted: 1979 MUSTANG II

## PRIMARY/DEPLOYMENT IMPACT:

35. Event Number 1
36. Total Delta-V 16 KPH  
(16 mph)
37. Longitudinal Delta-V -16 KPH  
(-16 mph)
38. Configuration 4
- See 32 above for codes
39. CDC: 12 FDEW 1
40. Object Contacted: 1979 MUSTANG II

# AIRBAG SUPPLEMENT

4

## AIRBAG SYSTEM DAMAGE

- CODES: (1) Yes, Damaged  
(2) No, Intact  
(3) Not Applicable  
(9) Unknown

41. Airbag Module

Driver

Pass

2

2

42. Left Front Sensor

1

43. Center Front Sensor

2

44. Right Front Sensor

2

45. Rear Cowl Sensor

2

46. Diagnostic Module

2

47. Wiring

2

48. Knee Diverter

3

49. Indication of disconnected  
or loose electrical  
connectors

2

50. Condition of Deployed Bag

Driver's

Pass.

8

1

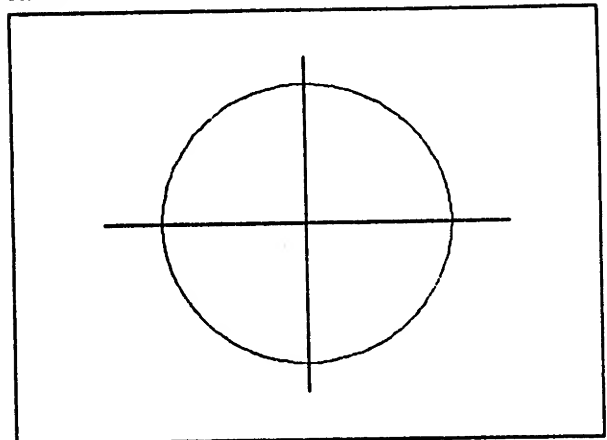
- (1) Bag intact  
(2) Split or torn  
(3) Cut by object in impact  
(4) Cut after accident  
(5) Other  
(8) NA (not deployed)  
(9) Unknown

DESCRIBE SYSTEM AND BAG DAMAGE:

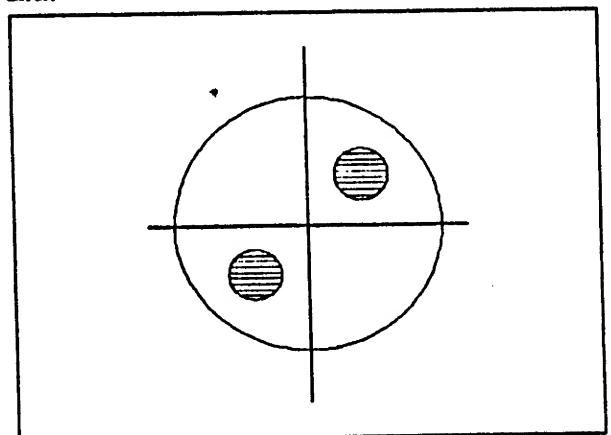
NO DAMAGE

NOTE DAMAGE AND CONTACT MARKS ON AIRBAG DIAGRAMS  
BELOW: NONE

FRONT



BACK



**AIRBAG SUPPLEMENT**

5

**OCCUPANTS OF AIRBAG CAR**

51. Number of Occupants in Vehicle

**2**

52. Number of Injured Persons

**2**

53. Maximum AIS in Airbag Vehicle

**1**

(0) No Injury

(1-6) AIS Severity

(7) Injured, unknown severity

(9) Unknown

**DRIVER**Age: **35**Sex: **FEMALE**

54. Number of Driver Injuries

**6**

55. Source of Best Injury Data

**4**

(0) Not injured

(1) Autopsy

(2) Hospital Medical Records

(3) Emergency Room only

(4) Private physician, clinic

(5) Lay Coroner Report

(6) EMS Personnel

(7) Interviewee

(8) Police

(9) Unknown

**MAXIMUM AIS BY BODY REGION**

REGION	MAX AIS	CONTACT
Head/Neck/Face	<u>1</u>	<u>92</u>
Chest	<u>1</u>	<u>41</u>
Abdomen	<u>1</u>	<u>41</u>
Legs/Hips	<u>1</u>	<u>41</u>
Other (Arms)	<u>      </u>	<u>      </u>
Driver Maximum	<u>1</u>	<u>41</u>

EJECTION **NONE**Extent: **N/A**Portal: **N/A****OTHER VEHICLE:**

Maximum AIS

**7**Prime/Deploy Impact w AB Vehicle  
Event Number**1**CDC: **09LZEW3**

Total Delta V

**(16mm) 26 KPH**Make: **FORD**Model Year: **1979**Model: **MUSTANG II**Body Type: **3 DOOR****NOTES:**



**AIRBAG SUPPLEMENT**

6

DRIVER BELT USAGE: (1) Used (2) Not Used (9) Unknown

1

Evidence:

DRIVER POSTURE: Any comments Recorded (1) Yes, (2) No

2

Describe driver's posture and position on seat including specific comments on head, torso, buttocks, legs, and feet. Also note hand and arm position. Did driver brace before crash? Describe:

DRIVER FOREIGN OBJECTS: Comments Recorded (1) Yes, (2) No

2

Was driver wearing contact lenses or eyeglasses? Or holding any foreign object at the time of the impact (packages on lap, pipe, food, bottle, cigarette, etc.)? Did any lenses, objects, or jewelry play any role?:

DRIVER COMMENTS: Comments Recorded (1) Yes, (2) No

2

Was the driver aware that the vehicle was equipped with a supplemental restraint system? Did driver offer any comments on smoke, noise, etc.? Did the driver comment on the airbag as a restraint system? Describe:

PASSENGER-AIRBAG CONTACT: (1) Yes, (2) No, (9) Unknown

1

Describe: *PASSENGER SIDE AIR BAG*

THIS REPORT IS FOR THE USE OF THE DIVISION OF MOTOR VEHICLES. THE DATA IS COLLECTED FOR STATISTICAL ANALYSIS AND SUBSEQUENT HIGHWAY SAFETY PROGRAMMING. DETERMINATIONS OF "FAULT" ARE THE RESPONSIBILITY OF INSURERS OR OF THE STATE'S COURTS.

Do not write in these spaces  
DMV REPORT #

2 No. of Units Involved

Supplemental Report

Date MONTH DAY YEAR 93	Day of Week	County	Time (24 Hour Clock)	Local Use / Patrol Area	Date Received by DMV
------------------------------	-------------	--------	-------------------------	-------------------------	----------------------

LOCATION	Collision occurred <input checked="" type="checkbox"/> In <input checked="" type="checkbox"/> Near _____ Municipality _____ or _____ 80 Miles <input type="checkbox"/> N <input type="checkbox"/> S <input checked="" type="checkbox"/> E <input type="checkbox"/> W outside municipality on _____ (R.R. Crossing # _____) _____ Miles 50 ft. <input type="checkbox"/> N <input type="checkbox"/> S <input type="checkbox"/> E <input checked="" type="checkbox"/> W (0 ft. Intersection) starts from _____ toward _____ Use Highway Number, Street Name or Adjacent County or State Line
----------	---

<b>VEHICLE 1</b> <input type="checkbox"/> HIT & RUN Driver _____ Address _____ City _____ State _____ Zip _____ Same Address on Driver's License? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Driver's Phone No. _____ D.L.# _____ State _____ DOB _____ month/day/year Vision 1. Obstruction <u>1</u> 2. Physical <u>1</u> 3. Intoxication <u>1</u> Restrictions <u>0</u> Owner <u>SAME AS DRIVER</u> Address _____ City _____ State _____ Zip _____ VIN <u>1LNLM81F5L4</u> Plate # _____ State _____ Year <u>93</u> Veh. Year <u>90</u> Veh. Make <u>LINE</u> Veh. Type Code <u>P</u> Commercial Vehicle <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Trailer Type Code _____ Air Bag <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 1st Trailer No. of Axles _____ Deployed <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <u>DRIVER</u> Width _____ inches Vehicle Drivable <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Length _____ feet Post Crash Fire <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 2nd Trailer No. of Axles _____ Rollover <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Width _____ inches Hazardous Cargo <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Length _____ feet Spilled <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No TAD _____ Crossed Median <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Est. Damage \$ <u>3500.00</u> Removed to _____ By _____ Authority <u>ROTATION</u>	<b>VEHICLE 2</b> <input type="checkbox"/> PEDESTRIAN <input type="checkbox"/> HIT & RUN <input type="checkbox"/> OTHER Driver 2 _____ Address _____ City _____ State _____ Zip _____ Same Address on Driver's License? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Driver's Phone No. _____ D.L.# _____ State _____ DOB _____ month/day/year Vision 1. Obstruction <u>1</u> 2. Physical <u>1</u> 3. Intoxication <u>1</u> Restrictions <u>0</u> Owner _____ Address <u>SAME AS DRIVER</u> City _____ State _____ Zip _____ VIN <u>9R03V</u> Plate # _____ State _____ Year <u>94</u> Veh. Year <u>79</u> Veh. Make <u>FORD</u> Veh. Type Code <u>P</u> Commercial Vehicle <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Trailer Type Code _____ Air Bag <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 1st Trailer No. of Axles _____ Deployed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Width _____ inches Vehicle Drivable <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Length _____ feet Post Crash Fire <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 2nd Trailer No. of Axles _____ Rollover <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Width _____ inches Hazardous Cargo <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Length _____ feet Spilled <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No TAD _____ Crossed Median <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Est. Damage \$ <u>500.00</u> Removed to _____ By _____ Authority <u>ROTATION</u>
---	---

Other Property Damaged <u>NONE</u>	Estimated Damage \$ _____	Owner Name _____ Address _____
------------------------------------	---------------------------	-----------------------------------

**OCCUPANT SECTION INSTRUCTIONS:** Give Injury Class, Belt/Helmet Usage, Race/Sex and Age of all occupants in the space corresponding to the seat occupied (see codes at top). Names and addresses are necessary for persons who were injured.

Seat	4. Inj. Class	5. Belt/Helmet	6. Race/Sex	Age	First Name	Last Name	Seat	4. Inj. Class	5. Belt/Helmet	6. Race/Sex	Age	First Name	Last Name
Left Front	B	3	F	35			Left Front	B	1	M	21		
Center Front							Center Front						
Right Front	C	3	M	11			Right Front						
Left Rear							Left Rear						
Center Rear							Center Rear						
Right Rear							Right Rear						

Total Number Occupants <u>2</u>	Total Number Injured <u>2</u>	Total Number Occupants <u>1</u>	Total Number Injured <u>1</u>
---------------------------------	-------------------------------	---------------------------------	-------------------------------

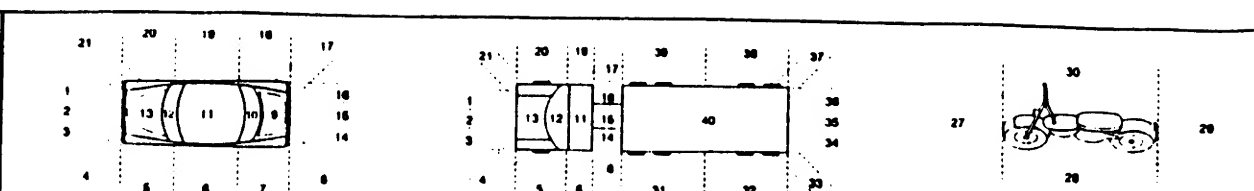
Ambulance Requested ☒ Yes ☐ No If yes, Ambulance Arrived At 1525 (24 Hour Clock)

Injured Taken To \_\_\_\_\_ (Treatment Facility and City or Town)

Send To

MARKS > < ADDED BY (initials)

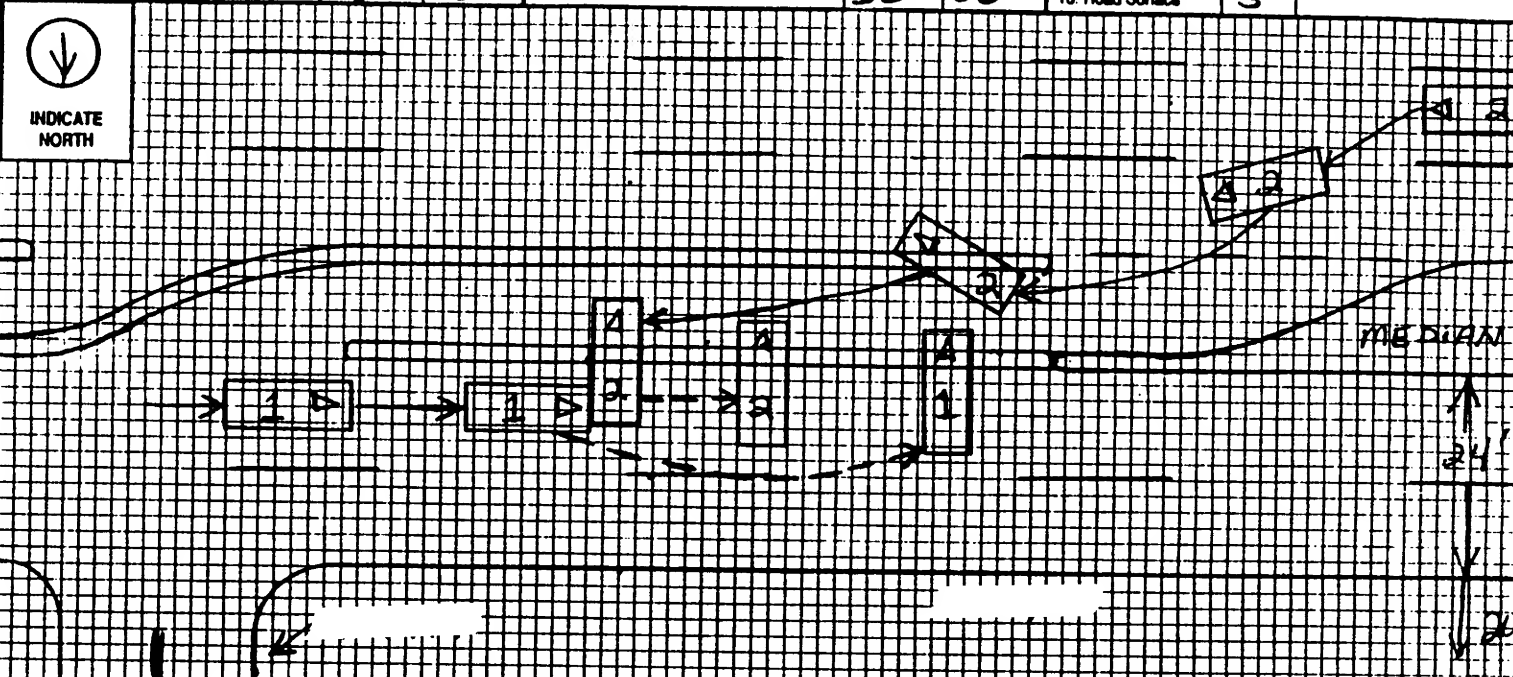
POINTS OF INITIAL CONTACT (Write in Codes)	
VEH. 1	VEH. 2
1	7
2	
3	



ACCIDENT SEQUENCE	Veh. 1	Veh. 2 or Ped.
6. Vehicle Maneuver/Pedestrian Action	4	5
7. First Harmful Event	2	
7. Most Harmful Event	22	22
8. Object Struck	1	1
9. Distance to Object Struck	8	8
10. Vehicle Defects	8	5

UNDERNEATH: 22. Front 23. Center 24. Rear 25. Unknown	
Veh. 1	Veh. 2 or Ped.
Speed Limit (for each vehicle)	50 50
Estimated Original Traveling Speed	45 45
Estimated Speed at Impact	45 40
Tire Impressions Before Impact (ft.)	0 0
Distance Traveled After Impact (ft.)	55 25

ROADWAY INFORMATION (See Front)	
11. Locality	3
12. Development Type	3
13. Road Feature	14
14. Road Character	1
15. Road Class	2
16. Number of Lanes	4
17. Road Configuration	3
18. Road Surface	3
19. Road Defects	
20. Road Condition	
21. Light Condition	
22. Weather	
23. Traffic Control	
Operating	<input type="checkbox"/> Yes <input type="checkbox"/> No
Visible	<input type="checkbox"/> Yes <input type="checkbox"/> No



Vehicle 1 was Traveling ☐ N ☐ S ☐ E ☒ W on \_\_\_\_\_

Vehicle 2 was Traveling ☐ N ☐ S ☐ E ☒ W on \_\_\_\_\_

DESCRIBE WHAT HAPPENED: VEH #1 WAS TRAVELING WEST ON \_\_\_\_\_ VEH #2 TRAVELING EAST ON \_\_\_\_\_  
CHANGED LANES FROM THE CENTER LANE TO THE LEFT LANE.  
VEH #2 LOST CONTROL ON THE WET PAVEMENT, SKIPPED ACROSS THE  
CONCRETE MEDIAN BARRIERS AND WENT INTO THE INSIDE WESTBOUND  
LANE IN FRONT OF VEH #1. VEH #1 COULDN'T STOP IN TIME AND STRUCK  
VEH #2 IN THE LEFT REAR QUARTER. BOTH VEHICLES CAME TO REST  
ON TOP OF THE CONCRETE MEDIAN BARRIERS.

CIRCUMSTANCES CONTRIBUTING TO THE COLLISION (Check as many as apply)		
DRIVER 1	DRIVER 2	DRIVER 3
<input checked="" type="checkbox"/> 1. None	<input type="checkbox"/> 10. Pass stopped school bus	<input type="checkbox"/> 19. Safe movement violation
<input type="checkbox"/> 2. Alcohol use	<input type="checkbox"/> 11. Passing on hill	<input type="checkbox"/> 20. Following too closely
<input type="checkbox"/> 3. Drug use	<input type="checkbox"/> 12. Passing on curve	<input type="checkbox"/> 21. Improper backing
<input type="checkbox"/> 4. Yield	<input type="checkbox"/> 13. Other improper passing	<input type="checkbox"/> 22. Improper parking
<input type="checkbox"/> 5. Stop sign	<input type="checkbox"/> 14. Improper lane change	<input type="checkbox"/> 23. Unable to determine
<input type="checkbox"/> 6. Signal	<input type="checkbox"/> 15. Use of improper lane	<input type="checkbox"/> 24. Left of center
<input type="checkbox"/> 7. Exceeding speed limit	<input type="checkbox"/> 16. Improper turn	<input type="checkbox"/> 25. Right turn on red
<input checked="" type="checkbox"/> 8. Exceeding safe speed	<input type="checkbox"/> 17. Improper or no signal	<input type="checkbox"/> 26. Other _____
<input type="checkbox"/> 9. Failure to reduce speed	<input checked="" type="checkbox"/> 18. Improper vehicle equipment	

RESERVED FOR CITY OR OTHER USE	
RESERVED FOR STATE USE	
24. Direction	Driver 1 Driver 2
25. Violation	
26. Misc. Action	
27. Charges	
28. Investigating Agency	

WIT- Name \_\_\_\_\_ Address \_\_\_\_\_ Phone No. \_\_\_\_\_

NESS: Name \_\_\_\_\_ Address \_\_\_\_\_ Phone No. ( ) \_\_\_\_\_

ARRESTS: Name DRIVER #2 Charge(s) IMPROPER TIRES

Name \_\_\_\_\_ Charge(s) \_\_\_\_\_

Print Here \_\_\_\_\_ Officer's Rank and Name \_\_\_\_\_ Number \_\_\_\_\_ Department \_\_\_\_\_ Date of Report 93



## MEDICAL CENTER

## EMERGENCY/OP RECORD

PREVIOUS ADM. DATE

TYPE

ACCOUNT NO.

GOLD CARE

MED. REC. NO.

RESCUE

DIABETIC

ORGAN DONOR

SEX

RACE

MB

AGE

SMOKER

LIVE WILL

RELIGION

FIN. CLASS

VIP CD.

COUNTY

REG. BY

GOLD CARE

MED. REC. NO.

TEL  
SSN

DOB

REL

TEL  
SSNTEL  
SSNPATIENT'S  
NAME  
DATE OF BIRTH  
SEX  
RELIGION  
FIN. CLASS  
VIP CD.  
COUNTY  
REG. BY  
GOLD CARE  
MED. REC. NO.

CHILD

1000 SELF PAY

1000

POL. # GP. #

REL

1000

2 POL. #

GP. #

POL. # GP. #

REL

I request to be seen by the Emergency Physician

I request that my private physician be notified

C. PLAIN

SERVICE

PATIENT'S

PHYSICIAN

ATTENDING PHYSICIAN

A. NECK PAIN

LAST TETANUS

TEMP

ORAL  
TYMPANIC

PULSE

RESP.

BP

WT.

RN  
SIGNATURE

A. INJURIES

MEDICATIONS

TRIAGE TIME

TIME IN ROOM

M.D. IN TO SEE

ED ASSIGNED

RML #

## IMPORTANT INFORMATION

This is the patient's copy of your Emergency Department Record. Please review the above information for accuracy and completeness. Pay special attention to the name, address, telephone number and insurance policy numbers.

## 1. Insurance Information

If you have insurance but did not have the necessary information in order for the hospital to bill at the time you were registered, please call the insurance department at Monday thru Friday 8:00 AM to 5:00 PM.

## Emergency Department Physician's Charges

If you are treated by an Emergency Department Physician, you will receive a separate bill for his services from a private billing company. If you did not give your insurance information upon registration, you will need to call locally at and give them your insurance information.

## 3. Radiology Charges

If you have x-rays made, the radiologist will bill you separately for the reading of your x-rays.

The examination and treatment you have received in the Emergency/Outpatient Department has been rendered on an emergency basis only and is not intended to be substitute for complete continuing medical care. Your records and test reports will be available to your personal physician or the local physician on call at the time you were seen. It is important that you report to this physician any new or remaining medical problems, because it is frequently impossible to recognize and treat all elements of injury or illness in a single Emergency/Outpatient Department visit.

DIAGNOSIS:

Dx: acute cervical strain; abrasion chin

INSTRUCTIONS TO PATIENT:

wash abrasion twice daily and apply Neosporin; leave open to air if able to tolerate it; take Tylenol every 4 hrs for pain. Head injury sheet. Recheck in the ER or with the health department pediatrician if any problems.

I certify that I understand the instructions given me.

Signature  
of  
Physician

WORK EXCUSED:

YES

No

DAYS

I hereby give consent for treatment and authorize release of records for insurance claims as they pertain on the reverse side of this form. I understand that payment for services rendered are due and payable at time of treatment.

DATE

WITNESS

PATIENT OR AUTHORIZED REPRESENTATIVE

LAB

X-RAY

TREATMENT

EKG

IV

ABG

O<sub>2</sub>

OBSERVATION

DATE

FROM:

TO:

DISPOSITION

DATE

DISCHARGED

ADMITTED

TO ROOM #

AMBULATORY WHEEL CHAIR STRETCHER

REFERRED RETURN

LEFT AMA

TRANSFERRED TO

RETURN DATE

LEVEL CODE

1 2 3 4

## ACCOUNTING

PAGE 1

NAME:

BUS:

SERVICE ADVISOR:

COLOR	YEAR	MAKE/MODEL	VIN	LICENSE	MILEAGE IN/ OUT	TAG	
HITE	90	LINCOLN TOWN CAR	1LNLM81F5LY		76663/76663		
DEL DATE	PROD. DATE	WARR. EXP.	PROMISED	PO NO.	RATE	PAYMENT	INV. DATE
					38.75	CASH	
R.O. OPENED		READY	OPTIONS:				

LINE	OPCODE	TECH	TYPE	A/HRS	S/HRS	COST	SALE	COMP	LIST	NET	TOTAL
------	--------	------	------	-------	-------	------	------	------	------	-----	-------

A EXHAUST NOISY, REEIMBURSEMENT FOR EXHAUST

REPLACEMENT

CAUSE: GOOD WILL REFUND OF 110.00

REFUND GOODWILL WARRANTY

WLM 0.00 0 0 0.00 0.00

ALLOW FORD AD ALLOWANCE

WLM 0.20 7.75 7.75

FC: PART#: COUNT: 0 0 TPARTS

CLAIM TYPE: 92M81 AUTH

CODE: D

TLABOR

VERSION 1 (EMP# 12:25): REFUND OF \$110.00

ACCOUNT SALE COST CONTROL ACCOUNT SALE COST CONTROL

\*\*\*\*\*

COST, SALE, &amp; COMP TOTALS

0

SERVICE HOURSPHONE

MONDAY - FRIDAY  
7:30 A.M. - 6:00 P.M.

## STATEMENT OF DISCLAIMER

The factory warranty constitutes all of the warranties with respect to the sale of this item/items. The Seller hereby expressly disclaims all warranties either express or implied, including any implied warranty of merchantability or fitness for a particular purpose. Seller neither assumes nor authorizes any other person to assume for it any liability in connection with the sale of this item/items.

X

CUSTOMER SIGNATURE

DESCRIPTION	TOTALS
LABOR AMOUNT	0.00
PARTS AMOUNT	0.00
GAS, OIL, LUBE	0.00
SUBLET AMOUNT	0.00
MISC. CHARGES	0.00
TOTAL CHARGES	0.00
LESS INSURANCE	0.00
SALES TAX	0.00
PLEASE PAY THIS AMOUNT	0.00

WARRANTY COPY



CUSTOMER #

## WORKORDER

PAGE 1

NAME:

BUS:

SERVICE ADVISOR:

COLOR	YEAR	MAKE/MODEL	VIN	LICENSE	MILEAGE IN/OUT	TAG
WHITE	90	LINCOLN TOWN CAR	1LNLM81F5LY		68311/	
DEL DATE	PROD. DATE	WARR. EXP.	PROMISED	PO NO.	RATE	PAYMENT
					38.75	CASH
R.O. OPENED		READY	OPTIONS:			

**RECOMMENDED SERVICE**  
**CURRENT MILEAGE 68311**

01-LUBE OIL AND FILTER

> BASED ON THE CURRENT MILEAGE OF YOUR VEHICLE, THE MANUFACTURER RECOMMENDS <<  
 > THE ABOVE SERVICE BE PERFORMED NOW <<

W - O - R - K - O - R - D - E - R

LINE	OP CODE	TECH	TYPE	DESCRIPTIONS/INSTRUCTIONS
# A	100	CLM		ENGINE, CUST REQUESTS CHECK ENGINE AND DRIVE TRAIN FOR DAMAGE DUE TO ACCIDENT
<i>No damage found to engine or drive train</i>				

## EXCLUSION OF WARRANTIES

Any warranties on the parts and accessories sold hereby are made by the manufacturer. The undersigned purchaser understands and agrees that dealer makes no warranties of any kind, express or implied, and disclaims all warranties, including warranties of merchantability or fitness for a particular purpose, with regard to the parts and/or accessories purchased; and that in no event shall dealer be liable for incidental or consequential damages or commercial losses arising out of such purchases. The undersigned purchaser further agrees that the warranties excluded by dealer, include, but are not limited to any warranties that such parts and/or accessories are of merchantable quality or that they will enable any vehicle or any of its systems to perform with reasonable safety, efficiency, or comfort.

## AUTHORIZATION FOR REPAIRS

I hereby authorize the repair work herein set forth to be done along with the necessary material and agree that you are not responsible for loss or damage to vehicle or articles left in vehicle in case of fire, theft or any other cause beyond your control or for any delays caused by unavailability of parts or delays in parts shipments by the supplier or transporter. I hereby grant you and/or your employees permission to operate the vehicle herein described on streets, highways or elsewhere for the purpose of testing and/or inspection. An express mechanic's lien is hereby acknowledged on above vehicle to secure the amount of repairs thereto. The dealership is not responsible for damages from freezing due to lack of antifreeze.

PRELIMINARY ESTIMATE #

AUTHORIZED BY X

REVISED ESTIMATE (1)	DATE	TIME	BY
REVISED ESTIMATE (2)			
REVISED ESTIMATE (3)			

I HEREBY, ACKNOWLEDGE THAT I WAS NOTIFIED & GAVE ORAL APPROVAL OF THE ABOVE REVISED ESTIMATES:

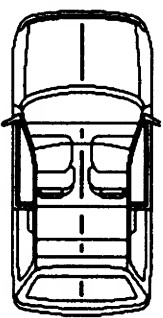
X

CUSTOMER SIGNATURE

TECHNICIAN COPY

US DEPARTMENT of Transportation  Auto Safety Hotline  <b>VEHICLE OWNER'S QUESTIONNAIRE</b> <div style="background-color: black; width: 150px; height: 20px; margin: 10px auto;"></div>		FOR AGENCY USE ONLY			
		ID	REFERENCE NO.	DATE RECEIVED <div style="background-color: black; width: 100px; height: 20px; margin: 5px auto;"></div>	od_or ___ rt_dt ___ od_rt ___ up_ltr ___
OWNER INFORMATION (TYPE OR PRINT)					
NAME and ADDRESS				TELEPHONE NO. (AREA CODE)	
Do you authorize NHTSA to provide a copy of this report to the manufacturer of your vehicle? YES <input type="checkbox"/> NO <input type="checkbox"/> In the absence of an authorization, NHTSA <i>WILL NOT</i> provide your name or address to the vehicle manufacturer.					
SIGNATURE OF OWNER				DATE	
VEHICLE INFORMATION					
VEHICLE IDENTIFICATION NO.*		VEHICLE MAKE <b>LINCOLN</b>		VEHICLE MODEL <b>TOWN CAR</b>	
MODEL YEAR <b>1990</b>					
* LOCATED AT BOTTOM OF WINDSHIELD ON DRIVER'S SIDE					
CURRENT ODOMETER READING		DATE PURCHASED _____		DEALER'S NAME, CITY, & STATE	
<input type="checkbox"/> NEW <input type="checkbox"/> USED		ENGINE SIZE (CID/KCU) _____ NO. CYLINDERS _____		<input type="checkbox"/> TURBO <input type="checkbox"/> DIESEL <input type="checkbox"/> GAS <input type="checkbox"/> FUEL INJECTN	
TRANSMISSION TYPE <input type="checkbox"/> MANUAL <input type="checkbox"/> AUTOMATIC	ANTILOCK BRAKES <input type="checkbox"/> YES <input type="checkbox"/> NO	RESTRAINT SYSTEM <input type="checkbox"/> DRIVER SIDE AIRBAG <input type="checkbox"/> MOTOR BELT <input type="checkbox"/> PASSENGER SIDE AIRBAG <input type="checkbox"/> 3-POINT BELT <input type="checkbox"/> 2-POINT BELT	CRUISE CONTROL <input type="checkbox"/> YES <input type="checkbox"/> NO	DRIVETRAIN <input type="checkbox"/> FRONT <input type="checkbox"/> REAR <input type="checkbox"/> 4-WHEEL	BODY STYLE STAWAG _____ HATCH BK _____ 4 DR _____ VAN _____ 2 DR _____ PK UP TRK _____ OTHER _____
FAILED COMPONENT(S)/PART(S) INFORMATION (REPORT TIRE INFORMATION ON BACK)					
COMPONENT 12110000	PART NAME(S)		LOCATION <input type="checkbox"/> LEFT FRONT <input type="checkbox"/> RIGHT REAR		FAILED PART(S) ORIGINAL REPLACEMENT
NO. OF FAILURES	DATE(S) OF FAILURE(S) <b>11-93</b>		MANUFACTURER CONTACTED <input type="checkbox"/> YES <input type="checkbox"/> NO		NHTSA PREVIOUSLY CONTACTED <input type="checkbox"/> YES <input type="checkbox"/> NO
	MILEAGE AT FAILURE(S) <b>70000</b>				
	VEHICLE SPEED AT FAILURE(S) <b>45</b>				
APPLICABLE ACCIDENT INFORMATION					
ACCIDENT <b>YES</b> <input type="checkbox"/> Yes <input type="checkbox"/> NO	FIRE <b>NO</b> <input type="checkbox"/> YES <input type="checkbox"/> NO	NUMBER PERSONS INJURED <b>1</b>	NUMBER OF FATALITIES <b>0</b>	PROPERTY DAMAGE <b>YES</b> EST \$	POLICE REPORT FILED <input type="checkbox"/> YES <input type="checkbox"/> NO
NARRATIVE DESCRIPTION OF FAILURE(S), ACCIDENT(S), INJURY(IES)					
<b>DUAL AIRBAGS: DRIVER'S AIRBAG DID NOT DEPLOY UPON IMPACT; PASSENGER'S AIRBAG DEPLOYED; IMPACT 11:00; SPEED VELOCITY 40-45 MPH; ACCIDENT REPORT WILL BE SENT. AK</b>					
CONTINUE ON BACK IF NEEDED					
The Privacy Act of 1974 Public Law 93-579 This information is requested pursuant to authority vested in the National Highway Traffic Safety Act and subsequent amendments. You are under no obligation to respond to this questionnaire. Your response may be used to assist the NHTSA			in determining whether a manufacturer should take appropriate action to correct a safety defect. If the NHTSA proceeds with administrative enforcement or litigation against a manufacturer, your response, or a statistical summary thereof, may be used in support of the agency's action.		



<p>US DEPARTMENT of Transportation</p> <p>National Highway Traffic Safety Administration</p>	<p>Auto Safety Hotline</p> <p><b>VEHICLE OWNER'S QUESTIONNAIRE</b></p> <p><b>SUPPLEMENTAL ACCIDENT FORM</b></p> <p><b>[REDACTED]</b></p>	FOR AGENCY USE ONLY		
	ID	REFERENCE NO.	DATE RECEIVED <b>[REDACTED]</b> 93	od_or rt_dt od_rt up_ltr
<b>ACCIDENT INFORMATION</b>				
<p>Location of initial impact (please mark appropriate box)</p> <p style="text-align: center;"><b>11:00</b></p> <div style="text-align: center;">  </div> <p style="text-align: center;"><b>1990</b></p> <p style="text-align: center;"><b>LINCOLN</b></p> <p style="text-align: center;"><b>TOWN CAR</b></p> <p>Vehicle speed: <b>45</b></p>	<p>Is vehicle equipped with a driver side airbag?</p> <p style="text-align: center;"><b>YES</b></p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> UNKNOWN</p> <p>Did driver side airbag deploy?</p> <p style="text-align: center;"><b>NO</b></p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>Was the driver wearing a seatbelt?</p> <p style="text-align: center;"><b>LAP/SHOULDER</b></p> <p><input type="checkbox"/> LAP/SHOULDER <input type="checkbox"/> LAP ONLY <input type="checkbox"/> SHOULDER ONLY <input type="checkbox"/> NO</p> <p>Location of the most severe injury sustained by the driver.</p> <p style="text-align: center;"><b>HEAD</b></p> <p><input type="checkbox"/> NO INJURY SUSTAINED BY DRIVER <input type="checkbox"/> HEAD <input type="checkbox"/> EYE <input type="checkbox"/> NECK <input type="checkbox"/> TORSO <input type="checkbox"/> ARM/UPPER EXTREMITIES <input type="checkbox"/> LEG/LOWER EXTREMITIES</p> <p>Type of injury to driver.</p> <p style="text-align: center;"><b>TRAUMA</b></p> <p><input type="checkbox"/> ABRASION <input type="checkbox"/> LACERATION <input type="checkbox"/> BREAK <input type="checkbox"/> BURN <input type="checkbox"/> TRAUMA</p> <p>Severity of injury to driver.</p> <p style="text-align: center;"><b>EMERGENCY ROOM</b></p> <p><input type="checkbox"/> NO TREATMENT <input type="checkbox"/> EMERGENCY ROOM <input type="checkbox"/> HOSPITALIZATION <input type="checkbox"/> FATAL</p>		<p>Is vehicle equipped with a passenger side airbag?</p> <p style="text-align: center;"><b>YES</b></p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> UNKNOWN</p> <p>Did passenger side airbag deploy?</p> <p style="text-align: center;"><b>YES</b></p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>Was the passenger wearing a seatbelt?</p> <p style="text-align: center;"><b>LAP/SHOULDER</b></p> <p><input type="checkbox"/> LAP/SHOULDER <input type="checkbox"/> LAP ONLY <input type="checkbox"/> SHOULDER ONLY <input type="checkbox"/> NOT WEARING <input type="checkbox"/> NO PASSENGER</p> <p>Location of the most severe injury sustained by the passenger.</p> <p style="text-align: center;"><b>NECK</b></p> <p><input type="checkbox"/> NO INJURY SUSTAINED BY PASSENGER <input type="checkbox"/> HEAD <input type="checkbox"/> EYE <input type="checkbox"/> NECK <input type="checkbox"/> TORSO <input type="checkbox"/> ARM/UPPER EXTREMITIES <input type="checkbox"/> LEG/LOWER EXTREMITIES</p> <p>Type of injury to passenger.</p> <p style="text-align: center;"><b>BURN</b></p> <p><input type="checkbox"/> ABRASION <input type="checkbox"/> LACERATION <input type="checkbox"/> BREAK <input type="checkbox"/> BURN <input type="checkbox"/> TRAUMA</p> <p>Severity of injury to passenger.</p> <p style="text-align: center;"><b>EMERGENCY ROOM</b></p> <p><input type="checkbox"/> NO TREATMENT <input type="checkbox"/> EMERGENCY ROOM <input type="checkbox"/> HOSPITALIZATION <input type="checkbox"/> FATAL</p>	

The Privacy Act of 1974  
Public Law 93-579  
This information is requested pursuant to authority vested in the National Highway Traffic Safety Act and subsequent amendments. You are under no obligation to respond to this questionnaire. Your response may be used to assist the NHTSA

in determining whether a manufacturer should take appropriate action to correct a safety defect. If the NHTSA proceeds with administrative enforcement or litigation against a manufacturer, your response, or a statistical summary thereof, may be used in support of the agency's action.

Version 1.03

Inc. 1992

Law Enforcement Edition

VIN:1LNLM81F5LY

DIGIT	DESCRIPTION	MEANING
1	Country of Origin	UNITED STATES
L	Manufacturer	LINC LINCOLN
N	Vehicle Type	LINCOLN PASSENGER CAR
L	Restraint System	AIR BAGS (FNT) & ACT.BELTS (ALL)
M	Line	PASSENGER CAR
81	Body Style	TOWN CAR (BASE) 4 DR SEDAN
F	Engine	5.0L CFI V8 2 BBL
5	Check Digit	CHECK DIGIT VALID
L	Year	1990
Y	Assembly Plant	MI
	Sequence Number	IN RANGE

\*\*\*\*\* VIN Passed Test \*\*\*\*\*

VIN indicates a 1990 LINCOLN TOWN CAR (BASE) 4 DR SEDAN

(c) Inc. 1992

[REDACTED]

Mr. [REDACTED]  
U.S. Department of Transportation  
National Highway Transportation Safety Administration  
[REDACTED]  
Washington, D. C. [REDACTED]

Reference Number:

Mr. [REDACTED]

I am responding to your request on behalf of my wife, [REDACTED] She had talked to you on [REDACTED] about her accident.

We are concerned as to why the driver's air bag on our car did not deploy upon impact and the passenger's air bag did deploy. [REDACTED] finds a great deal of comfort finding a professional that is interested in the fact a product she purchased for it's safety features and placed so much trust in failed at the very time it was designed to function properly. It seems all the 'laymen' we've talked to are positive that something should be done, yet all the 'professionals' (lawyers) want to try and ignore it or play it down. It seems it would take her death to make this incident noticeable.

SOME INFORMATION REGARDING THE AIR BAG SYSTEM. THE TEST WARNING LIGHT FOR THE 'SRS' CAME ON EVERY TIME THE CAR WAS STARTED AND AFTER A COUPLE OF SECONDS IT WOULD GO OUT. TO MY UNDERSTANDING, THE CAR'S DIAGNOSTICS WAS TELLING US THAT THE 'SRS' WAS IN PROPER OPERATING ORDER. WE HAVE NEVER SEEN THE LIGHT COME ON AND STAY ON OR NOT COME ON AT ALL. I CAN ASSURE YOU, THAT PARTICULAR INDICATOR LIGHT WAS OF GREAT INTEREST TO MY WIFE. SHE IS A VERY SAFETY CONSCIOUS INDIVIDUAL.

I want to thank you for responding and your concern. It has taken a great deal of the anxiety and pressure off of [REDACTED] She feels more assured that something positive will come of this very unfortunate situation.

I have enclosed the items you requested. If there is any other information that we can provide to you, certainly call us.

Respectfully,

encls: (1) PHOTOS  
(2) ACCIDENT REPORT  
(3) EMERGENCY ROOM REPORTS  
(4) AUTOMOBILE INFORMATION  
(5) PREVIOUS REPAIR WORK

MR. [REDACTED]

I MARKED THE BACK OF THE PHOTOS TO MATCH THE SET I HAVE HERE. EACH PHOTO WAS TAKEN FOR A SPECIFIC REASON, BUT IT MAY NOT BE APPARENT. I WILL CERTAINLY BE AVAILABLE TO ASSIST YOU IN ANY WAY.

*T*

**AUTOMOBILE INFORMATION**

**VIN: 1LNLM81F5LY** 

**MAKE: LINCOLN**

**MODEL: TOWN CAR (4 DOOR)**

**YEAR: 1990**

**SAFETY FEATURES:**

- 1. DRIVER AND PASSENGER AIR BAGS**
- 2. SHOULDER HARNESS/LAP BELT IN  
FRONT AND BACK SEATS**
- 3. ABS**
- 4. WHITE IN COLOR**

# ESTIMATE OF REPAIRS

NAME		ADDRESS				DATE
Make of Car	Year	Type	License Number	Mileage	Serial No.	
Ford	90	Town Car				
Color	Body Style	Insured By	Phone		Work	
	4D Sedan		Home			
Repair	Replace	DESCRIPTION OF REPAIRS	PARTS	LABOR AMOUNT	PAINT AMOUNT	SUBLET
✓		left side marker light assy	72.35	5		
✓		Headlight panel (2.0)	160.33	5.5		
✓		left Head light assy	129.88	—		
✓		Front Fender lower center section	350.43	—		
✓		" Bumper Corner (2.5)	495.27	2.8		
✓		left Fender & Align (2.8)	—	3.0		
✓		Hood	—	1.0		
✓		left side cover	87.52	—		
✓		Built up fender	110.45	0.8		
		Front end alignment		1.4		
		Paint & Met		6.1	85.40	
		Clean Coat		11.0	14.5	
		Lic Plate Holder (Front)				
		San				

The above is an estimate based on our inspection and does not cover any additional parts or labor which may be required after the work has been opened up. Occasionally after the work has started, worn or damaged parts are discovered which are not evident on the first inspection. Because of this the above prices are not guaranteed, and are for immediate acceptance only.

SUB-TOTAL

1,415.63 22.1 99.40

LABOR HOURS

22.1 @ 28.00

618.

SUBLET

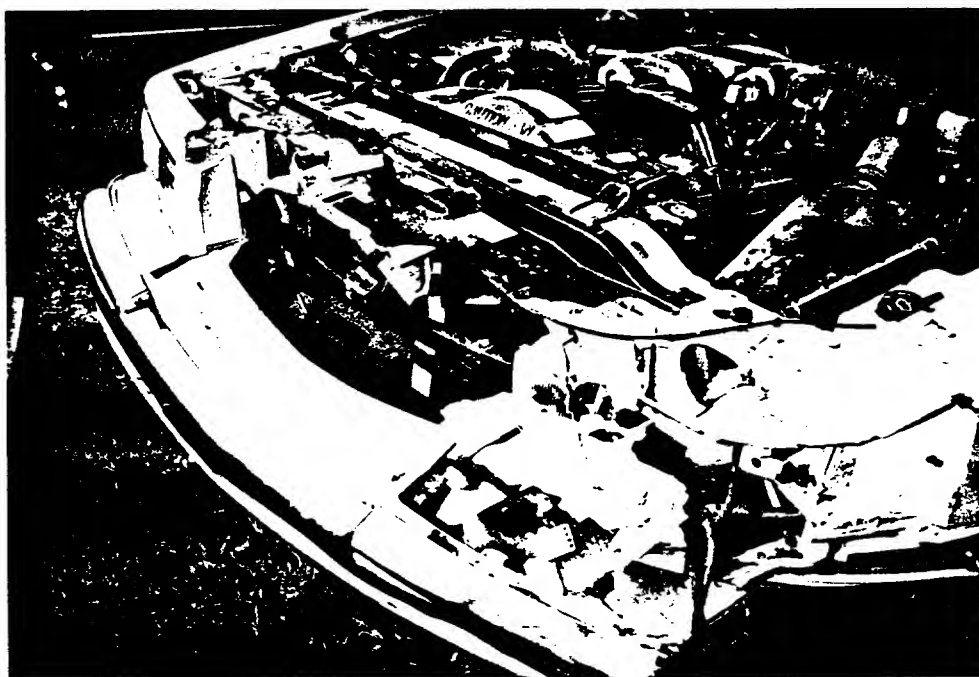
TAX

87.

GRAND TOTAL

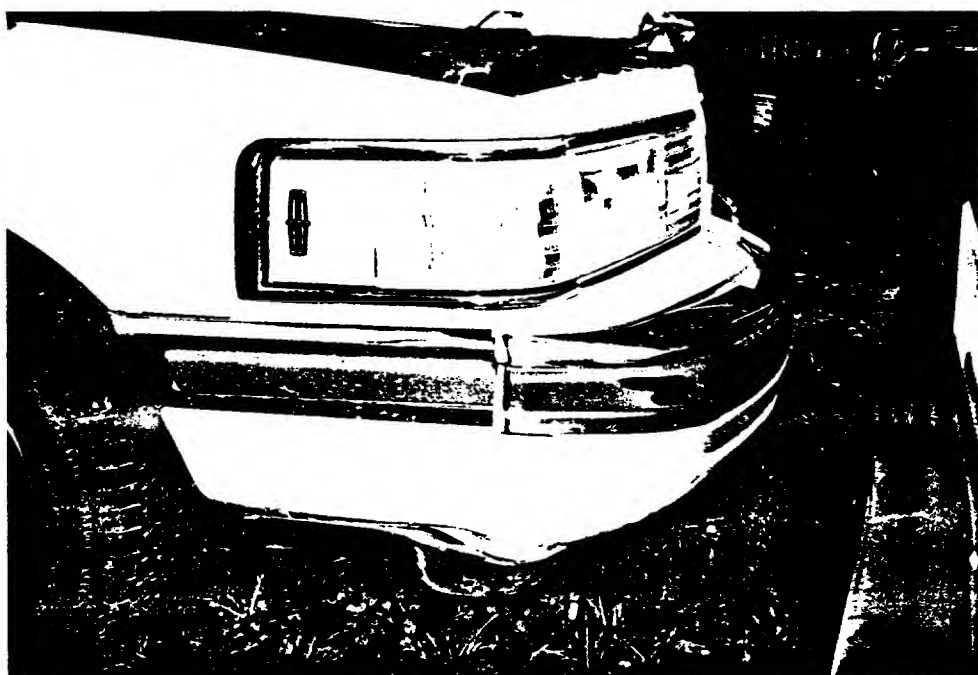
2,262.55



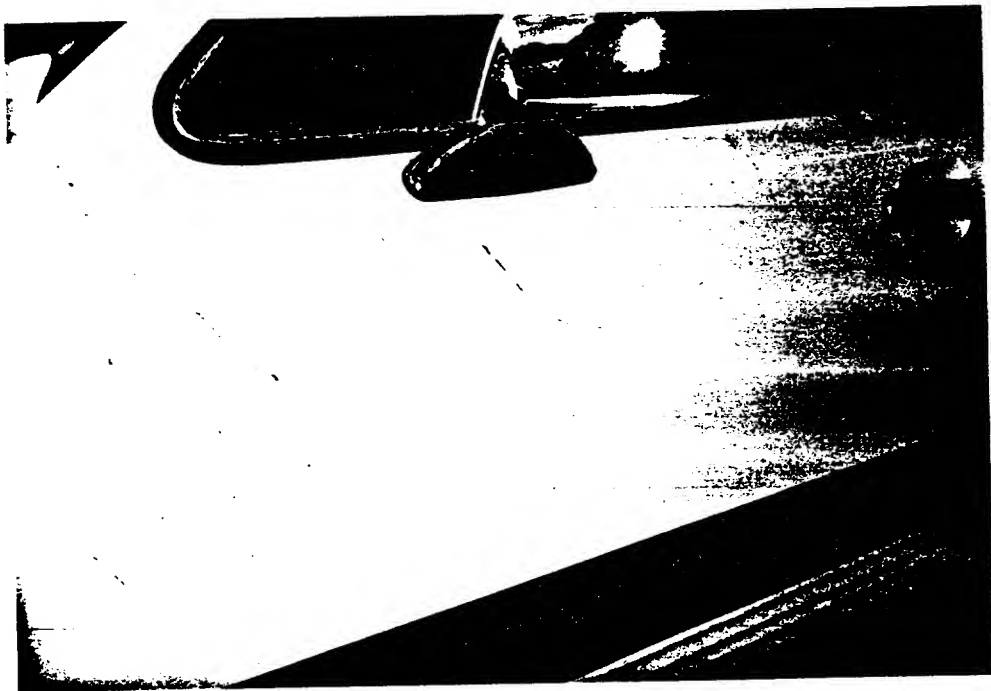






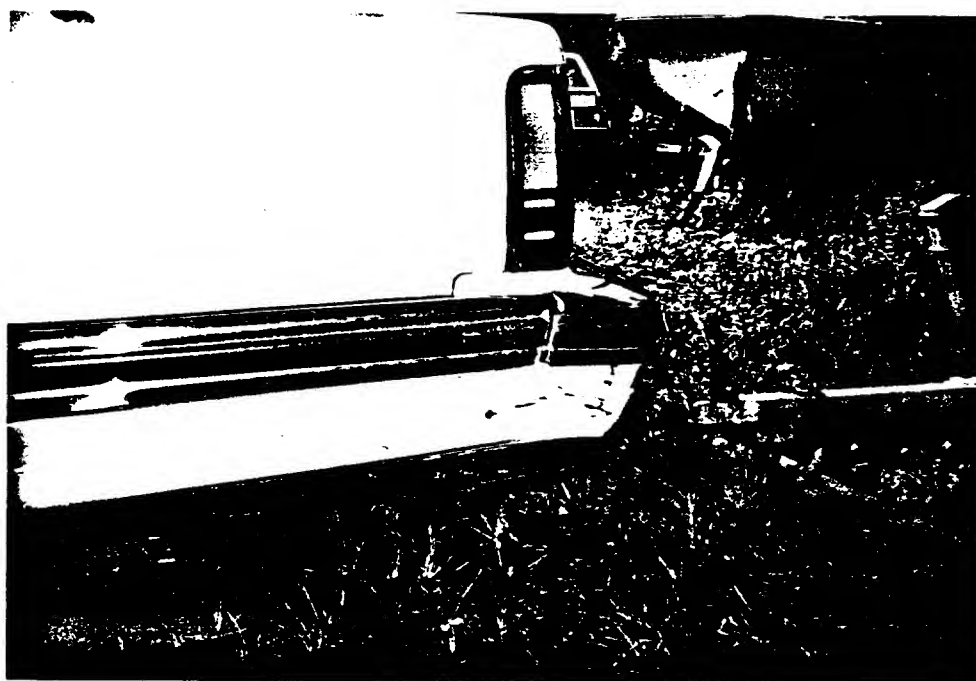


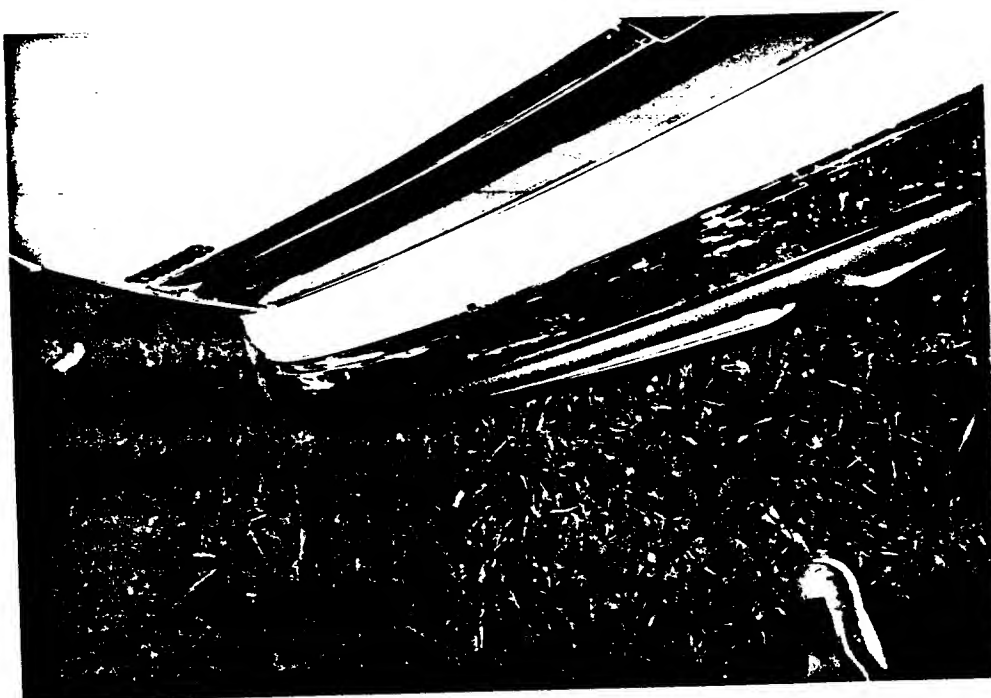














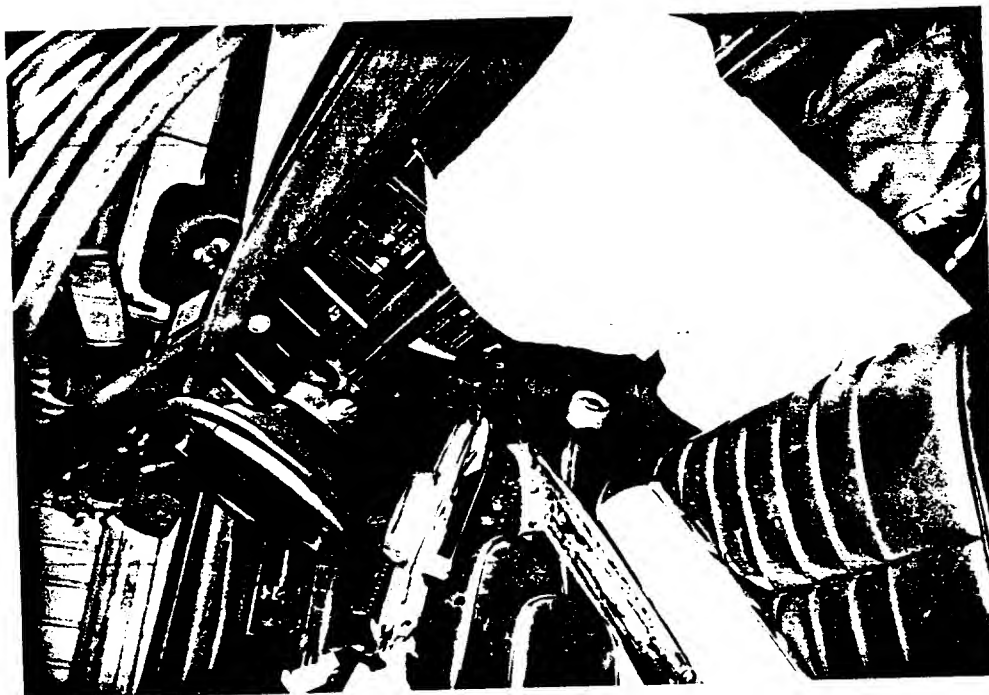














# SECTION 41-58 Restraint System—Supplemental Air Bag

SUBJECT	PAGE	SUBJECT	PAGE
<b>DESCRIPTION</b>		<b>REMOVAL AND INSTALLATION (Cont'd.)</b>	
Diagnostic Monitor .....	41-58-3	Backup Power Supply .....	41-58-12
Driver Air Bag .....	41-58-2	Diagnostic Monitor .....	41-58-11
Electrical System .....	41-58-4	Driver Air Bag .....	41-58-13
Passenger Air Bag .....	41-58-3	Passenger Air Bag .....	41-58-14
Tone Generator .....	41-58-4	Sensor—Front Center .....	41-58-9
<b>DIAGNOSIS AND TESTING</b>		Sensor—LH Front .....	41-58-10
Ford Crown Victoria/Mercury Grand		Sensor—Rear .....	41-58-11
Marquis .....	41-58-45	Sensor—RH Front .....	41-58-10
<b>DISPOSAL PROCEDURES</b>		Trim Panel and Steering Column Opening ...	41-58-14
Air Bag Disposal .....	41-58-15	<b>SERVICE PRECAUTIONS</b>	
Deployed Air Bags .....	41-58-15	Deployed Air Bags .....	41-58-8
Scrapped Vehicle .....	41-58-15	General Instructions .....	41-58-8
Undeployed Air Bag—Inoperative .....	41-58-15	Live Air Bags .....	41-58-8
<b>PARTS REPLACEMENT</b>		<b>SPECIAL SERVICE TOOLS</b> .....	41-58-72
Repair of Air Bag Equipped Vehicles		<b>SPECIFICATIONS</b> .....	41-58-72
Involved in Accidents .....	41-58-5	<b>VEHICLE APPLICATION</b> .....	41-58-1
<b>REMOVAL AND INSTALLATION</b>			
Air Bag Clockspring .....	41-58-13		

## VEHICLE APPLICATION

Lincoln Town Car, Ford Crown Victoria/Mercury Grand Marquis.

## DESCRIPTION

The Supplemental Air Bag Restraint System (SRS) is designed to provide increased accident protection for front seat occupants IN ADDITION TO that provided by the three point safety belt system. Safety belt use is necessary to obtain the best occupant protection and to receive the full advantages of the supplemental air bag. **FORD RECOMMENDS THE USE OF SAFETY BELT SYSTEMS FOR ALL VEHICLE OCCUPANTS.**

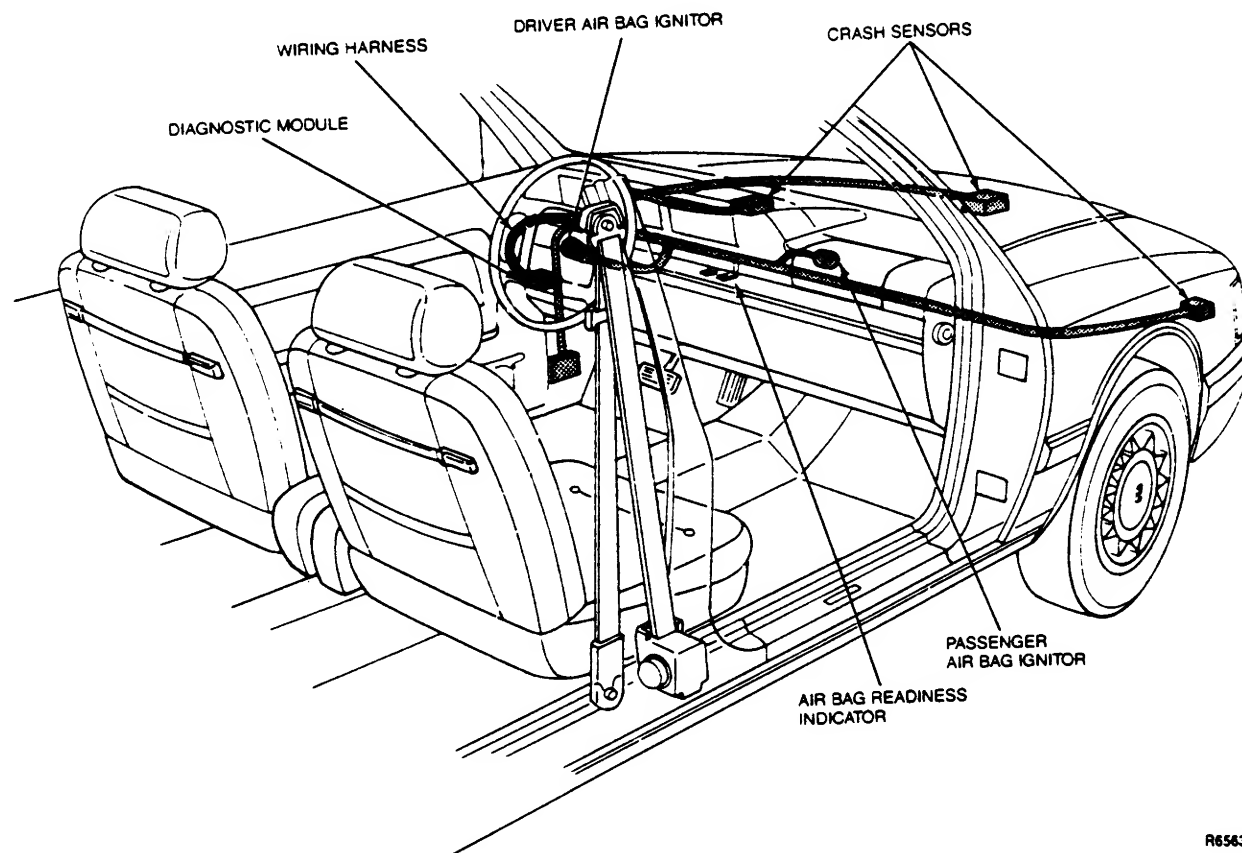
Refer to Section 41-50 for information on the Safety Belt Restraint System.



**DESCRIPTION (Continued)**

The Supplemental Air Bag Restraint System consists of two basic subsystems:

- The driver and passenger air bags.
- The electrical system; including impact sensors, electronic diagnostic monitor and a backup power supply.



R6563-A

**Driver Air Bag**

The driver air bag is mounted in the center of the steering wheel. The module consists of:

- Inflator.
- Mounting plate and retainer ring.
- Bag assembly.
- Steering wheel trim cover.

NOTE: The driver air bag is serviced as a complete assembly.

**Inflator**

The inflator assembly is not a serviceable item. When the sensors close, signalling a crash, battery power flows to the air bag inflator. Inside the inflator, an igniter converts the electrical signal to thermal (heat) energy, causing the ignition of the inflator gas

generant. This ignition reaction combusts the sodium azide/copper oxide gas generant in the inflator, producing nitrogen gas, which inflates the air bag.

**Driver Air Bag**

The air bag is constructed of neoprene coated nylon, is 28 inches in diameter and fills to a volume of about 2.3 cubic feet in approximately 40 milliseconds. It is not a serviceable item.

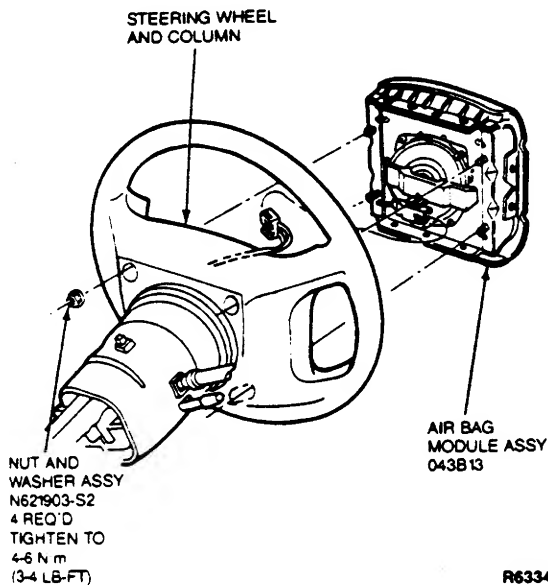
**Mounting Plate and Retainer Ring**

The mounting plate and retainer ring attach and seal the bag assembly to the inflator. The mounting plate is also used to attach the trim cover and to mount the entire module to the wheel. These items are components of the air bag module and cannot be serviced.

## DESCRIPTION (Continued)

**Steering Wheel Trim Cover**

When the air bag is activated, tear seams moulded into the steering wheel trim cover separate to allow inflation of the bag. The cover is a component of the air bag module and is not serviceable.

**Passenger Air Bag****Lincoln Town Car**

The passenger air bag is mounted in the RH position of the instrument panel above the glove compartment. The Air Bag consists of the following components:

- Inflator.
- Reaction housing with mounting hardware.
- Bag assembly.
- Trim cover.

NOTE: The passenger air bag is serviced as a complete assembly.

**Inflator**

The passenger air bag inflator is not a serviceable item. As with the driver air bag, an igniter inside the inflator converts to battery power to thermal (heat) energy, causing ignition of the gas generant. The ignition reaction causes combustion of the sodium oxide/iron oxide gas generant producing nitrogen to fill the bag. Since the passenger air bag is much larger than the driver air bag, it contains more gas generant in a different inflator configuration to produce more nitrogen gas.

**Passenger Air Bag Assembly**

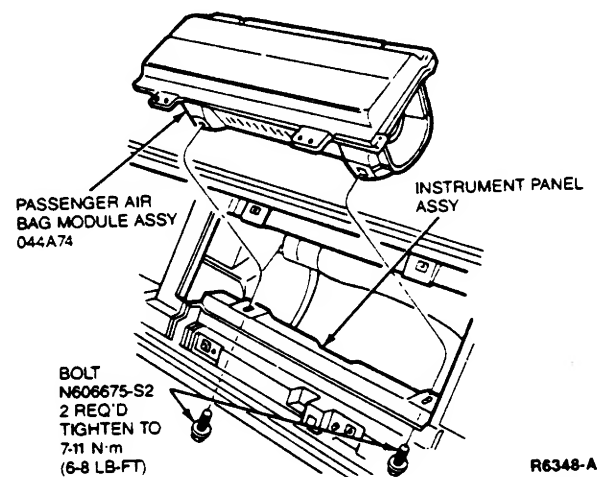
The passenger air bag is constructed of ripstop nylon. The bag fills to a volume of approximately 8 cubic feet. It is not a serviceable item.

**Reaction Housing**

The steel housing supplies support for the inflator, a reaction surface for the air bag, and is used to attach the trim cover. It contains mounting brackets that attach the air bag to the instrument panel, and is not a serviceable item.

**Trim Cover**

The thermo-plastic trim cover is textured and painted to match the surface of the instrument panel. It is constructed with a moulded-in tear seam that separates when the air bag inflates, and hinges out of the way during deployment. Its main function is to retain the air bag in the reaction housing during vehicle operation, and is not a serviceable item.

**Diagnostic Monitor**

The diagnostic monitor contains a microcomputer that monitors the electrical system components and connections. The monitor performs a self-check of the microcomputer internal circuits and energizes the system readiness indicator lamp during prove out and whenever a fault occurs. System electrical faults can be detected and translated into different coded lamp displays. If certain faults occur, the system will be disarmed by a firing disarm device built into the monitor. If a system fault exists and the lamp is malfunctioning, an audible tone will be heard indicating the need for service.

**System Readiness Indicator Lamp**

The system readiness indicator, located in the left pad of the electronic instrument cluster will light for approximately six seconds whenever the ignition switch is turned from OFF to RUN if the air bag is working properly. If air bag system faults are found, the lamp will either fail to light, stay on continuously, or light in a flashing mode (if a system fault exists and the lamp is malfunctioning an audible tone will be heard indicating the need for service). If a fault occurs after the prove out the lamp will light either continuously or in a coded flashing mode.

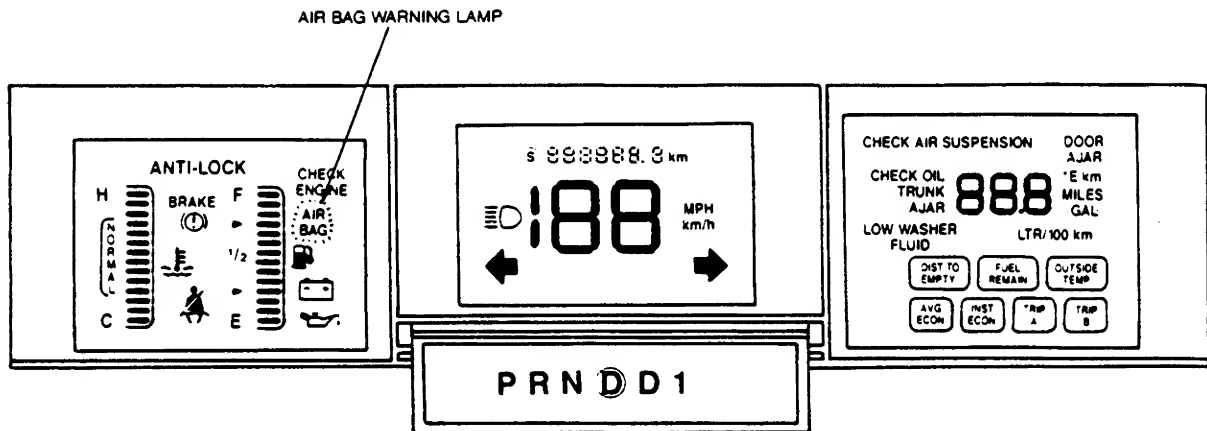
## DESCRIPTION (Continued)

## Tone Generator

The air bag readiness lamp is the prime means of determining the air bag system condition. However, a series of five sets of five tones will be heard if the readiness lamp is out and a fault occurs in the system. This also means that the Supplemental Air

## Lincoln Town Car

Bag System is in need of service. The tone pattern will repeat periodically until the fault and lamp outage are serviced. Unless serviced, the Supplemental Air Bag Restraint System may not function properly in the event of an accident.



R6553-A

## Electrical System

The air bag system is powered directly from the battery. The system can function with the ignition switch in any position, including OFF and LOCK. The system can also function when the driver or passenger seats are unoccupied. The electrical system performs three main functions:

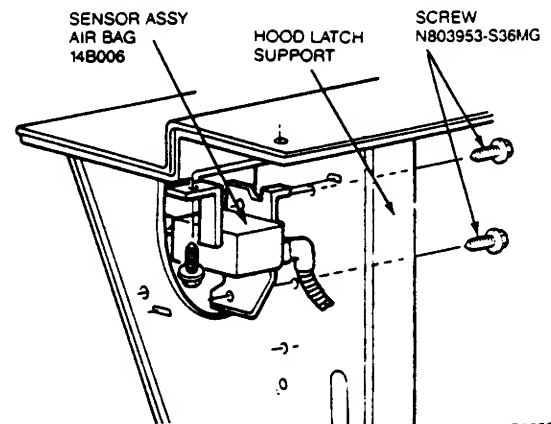
- Detects an impact.
- Switches electric power to the air bags.
- Monitors the system to determine readiness.

The electrical system components include:

- Diagnostic monitor.
- Air bag system readiness indicator.
- Wiring harness.
- Sensors.
- The igniter within the driver and passenger air bags.
- Backup power supply.

## Sensors

The sensor is an electrical switch which reacts to impacts according to direction and force. It discriminates between impacts that require air bag inflation and impacts that do not require air bag inflation. When an impact occurs that requires air bag inflation, the sensor contacts close, completing the electrical circuit necessary for system operation.



R6555-A

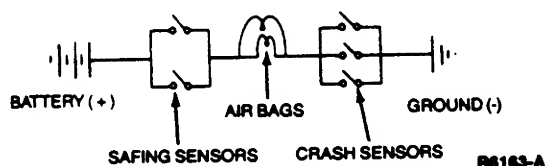
## DESCRIPTION (Continued)

Five sensors are mounted in the vehicle. Their locations are as follows:

- A dual crash and safing sensor at the hood latch support.
- A crash sensor at the RH fender apron.
- A crash sensor at the LH fender apron.
- A safing sensor at the LH cowl side in the passenger compartment.

At least two sensors, one safing, one front, must be activated to inflate the air bag.

AIR BAG FIRING CIRCUIT DIAGRAM



## Backup Power Supply

A backup power supply is included in the system to provide air bag deployment if the battery or battery cables are damaged in an accident before the crash sensors close. The power supply is a capacitor that will discharge approximately 15 minutes after the battery is disconnected. It is located in the instrument panel and is combined with the diagnostic monitor.

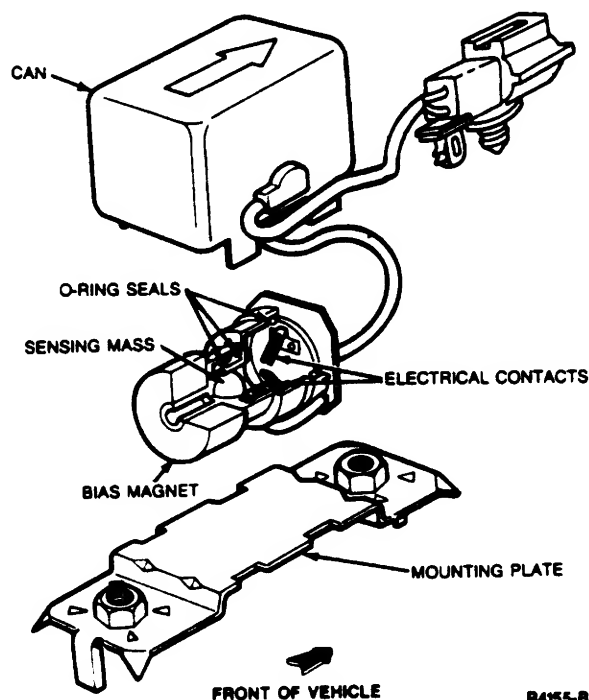
**WARNING: THE BACKUP POWER SUPPLY MUST BE DISCONNECTED BEFORE ANY AIR BAG COMPONENT SERVICE IS PERFORMED.**

## PARTS REPLACEMENT

The various major assemblies in the air bag system have been designed to be tamper-resistant and are not intended to be disassembled for service. Component assemblies may be removed and replaced as required. Information on proper handling, storage, and disposal of the air bag inflator assemblies is provided in this Section. Refer to Removal and Installation. Warning labels for the air bag are shown.

## Igniter Assembly

Refer to Air Bag Module for description



## Repair of Air Bag Equipped Vehicles Involved in Accidents

While repairing an air bag equipped vehicle that has been involved in an accident, check sensors and wiring.

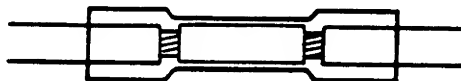
Vehicle sensor orientation is critical for proper system operation. If a vehicle equipped with an air bag system is involved in a crash where the fenders or grille area have been damaged, inspect the sensor mounting brackets for damage. If damaged, the sensor should be replaced whether or not the air bag is deployed. In addition, ensure that body structure in the area of the sensor mounting is restored to its original condition.

Inspect the sensor wiring and the wiring harness for any damage that may have occurred due to the accident. Repair or replace any damaged wiring, terminals, insulation or connectors as required. If splices are required in adjacent wiring, the splices should be staggered 50mm (2 inches) from each other. Repair as follows:

A waterproof butt splice connector should be used on all wiring repairs in the engine compartment. A heat shrink nylon splice prevents water, salt, condensation and heat from affecting the wiring repair.

The inner wall of the splice connector is lined with an adhesive that melts when heated with a heat gun and flows under pressure from the tubing, sealing the splice. The connectors can be crimped with a standard insulated connector crimping tool. The splices are color coded for gauge identification, and are transparent to allow inspection of the finished splice.

INSTALLATION INSTRUCTIONS



1. STRIP WIRES 7.6mm (0.3")  
INSERT INTO CRIMP BARREL



2. CRIMP USING CRIMP TOOL FOR  
PREINSULATED CRIMPS.



3. HEAT SPLICE WITH HEAT GUN UNTIL  
TUBING SHRINKS AND ADHESIVE  
FLOWS FROM EACH END.

R6710-A

Part Number	Part Name	Class
E6FZ-14488-A	Butt Connector Gauge: 18-22, Color: Red	C
E6FZ-14488-B	Butt Connector Gauge: 14-16, Color: Blue	C
E6FZ-14488-C	Butt Connector Gauge: 10-12, Color: Yellow	C

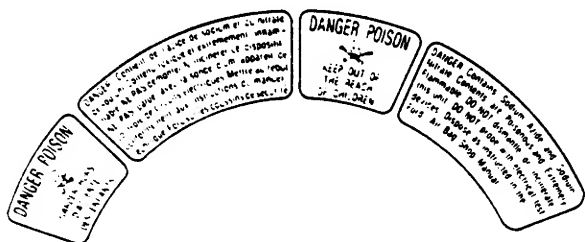
CR6720-A

If the accident involved air bag deployment, the steering column may have been loaded sufficiently to deform steering column mounting brackets or damage column wiring.

An inspection should be made of the column structure and clockspring wiring to ensure that any damaged components are replaced. Refer to Section 13-04.

After all service, **verify the air bag lamp.** This means turn the ignition switch to RUN and count the flashes only after the code (series of flashes) has cycled twice. If the air bag lamp comes on continuously for 4 to 8 seconds and then goes out, the system is functioning properly and all faults have been replaced. Refer to Diagnosis and Testing.

## PARTS REPLACEMENT (Continued)



ON DRIVER AIR BAG

## WARNING

This restraint module cannot be repaired. Use Ford published diagnostic instructions to determine if the unit is defective. If defective, replace and dispose of the entire unit as directed in instructions. Under no circumstances should diagnosis be performed using electrically powered test equipment or probing devices. Tampering or mishandling can result in personal injury. For special handling instructions, refer to the Ford Air Bag Shop Manual.

## AVERTISSEMENT

On ne répare pas ce dispositif de sécurité. Des directives de diagnostic publiées par Ford vous permettront de déterminer si le dispositif est défectueux. Si il est défectueux, le remplacer et suivre les directives de mise au rebut du dispositif complet. On ne doit en aucun cas tester ce dispositif à l'aide d'appareils électriques ou de sondes. Toute altération ou manipulation induite pourrait causer des blessures. Le manuel technique Ford sur les coussins de sécurité donne des instructions spéciales de maintenance.

ON PASSENGER AIR BAG

Ford AIR BAG INFORMATION	Ford COUSSIN DE SÉCURITÉ
<p>Air Bag System is normal if "AIR BAG" lamp lights briefly when ignition key is turned on.</p> <p><b>NO MAINTENANCE IS NEEDED UNLESS:</b></p> <ol style="list-style-type: none"> <li>"AIR BAG" lamp does not light when key is turned on.</li> <li>"AIR BAG" lamp flashes or stays lit.</li> <li>Groups of five "beeps" are heard.</li> <li>An air bag has inflated.</li> </ol> <p><b>USE SEAT BELTS EVEN IF YOU HAVE AN AIR BAG.</b> SEE OWNER GUIDE FOR MORE INFORMATION ABOUT AIR BAGS.</p>	<p>Le dispositif du coussin de sécurité est en bon état si le témoin marqué "AIR BAG" s'allume momentanément quand le commutateur d'allumage est en position de contact.</p> <p><b>AUCUNE INTERVENTION NE S'IMPOSE SAUF SI:</b></p> <ol style="list-style-type: none"> <li>Le témoin "AIR BAG" ne s'allume pas quand le commutateur d'allumage est en position de contact.</li> <li>Le témoin "AIR BAG" clignote ou reste allumé.</li> <li>Des successions de cinq bips se font entendre.</li> <li>Un coussin de sécurité s'est déployé (gonflé).</li> </ol> <p><b>BOUCLEZ VOTRE CEINTURE MÊME SI VOUS BÉNÉFICIEZ D'UN COUSSIN DE SÉCURITÉ.</b> <b>LE GUIDE DU PROPRIÉTAIRE VOUS DONNE DE PLUS AMPLES RENSEIGNEMENTS SUR LES COUSSINS DE SÉCURITÉ.</b></p>

ON GLOVE BOX DOOR

WARNING
<p><b>DO NOT TAMPER WITH OR DISCONNECT THE AIR BAG SYSTEM WIRING.</b> You could inflate the bag(s) or make it inoperative which may result in injury. See Shop Manual.</p>
ADVERTISSEMENT
<p><b>NE PAS MANIPULER NI DÉBRANCHER LE CÂBLAGE ÉLECTRIQUE DU DISPOSITIF D'UN COUSSIN DE SÉCURITÉ.</b> Cela pourrait gonfler le coussin de sécurité ou le mettre hors service et entraîner des blessures. Voir le manuel de réparation.</p>

ON HOOD LATCH SUPPORT

<p>This vehicle has a DRIVER AIR BAG. If the letters "SRS" are above the glove box, it also has a FRONT PASSENGER AIR BAG.</p> <p><b>SEAT BELTS MUST STILL BE USED:</b></p> <ul style="list-style-type: none"> <li>For effective protection in all types of accidents.</li> <li>To reduce risk of injury from an inflating air bag in an accident.</li> </ul> <p><b>FOR CHILD SEATS IN VEHICLES WITH A PASSENGER AIR BAG:</b></p> <ul style="list-style-type: none"> <li>Forward facing—move passenger seat as far from dash as possible.</li> <li>Rear facing—use only in rear seat.</li> </ul> <p>See Owner Guide</p>	<p>Ce véhicule comporte un COUSSIN DE SÉCURITÉ Pour le CONDUCTEUR. Si les lettres "SRS" figurent au-dessus de la boîte à gants, il possède également un COUSSIN DE SÉCURITÉ pour le PASSAGER AVANT.</p> <p><b>IL FAUT CONTINUER À UTILISER LES CEINTURES DE SÉCURITÉ:</b></p> <ul style="list-style-type: none"> <li>Pour une protection efficace lors de tout accident.</li> <li>Pour réduire les risques de blessures causées par le déploiement du coussin de sécurité lors d'un accident.</li> </ul> <p><b>SIÈGES POUR ENFANTS DANS LES VÉHICULES COMPORTANT UN COUSSIN DE SÉCURITÉ POUR LE PASSAGER AVANT:</b></p> <ul style="list-style-type: none"> <li>Siège vers l'avant: Reculer le siège passager avant le plus loin possible vers l'arrière.</li> <li>Siège vers l'arrière: n'utiliser que sur la banquette arrière.</li> </ul> <p>Voir le Guide du propriétaire</p>
---	--

ON BACK OF VISORS

## SERVICE PRECAUTIONS

**WARNING: SAFE HANDLING OF AIR BAGS REQUIRE FOLLOWING THE PROCEDURES DESCRIBED BELOW FOR BOTH LIVE AND DEPLOYED AIR BAGS.**

**ALWAYS WEAR SAFETY GLASSES WHEN SERVICING AN AIR BAG VEHICLE, AND WHEN HANDLING AN AIR BAG.**

**Live Air Bags**

WHEN CARRYING A LIVE AIR BAG, MAKE SURE THE BAG AND TRIM COVER ARE POINTED AWAY FROM YOUR BODY. IN THE UNLIKELY EVENT OF AN ACCIDENTAL DEPLOYMENT, THE BAG WILL THEN DEPLOY WITH MINIMAL CHANCE OF INJURY. IN ADDITION, WHEN PLACING A LIVE AIR BAG ON A BENCH OR OTHER SURFACE, ALWAYS FACE THE BAG AND TRIM COVER UP, AWAY FROM THE SURFACE. THIS WILL REDUCE THE MOTION OF THE AIR BAG IF IT IS ACCIDENTALLY DEPLOYED.

**Deployed Air Bags**

SAFETY PRECAUTIONS MUST ALSO BE OBSERVED WHEN HANDLING A DEPLOYED AIR BAG. AFTER DEPLOYMENT, THE AIR BAG SURFACE MAY CONTAIN DEPOSITS OF SODIUM HYDROXIDE, A PRODUCT OF THE GAS GENERANT COMBUSTION THAT IS IRRITATING TO THE SKIN. ALWAYS WEAR GLOVES AND SAFETY GLASSES WHEN HANDLING A DEPLOYED AIR BAG, AND WASH YOUR HANDS WITH MILD SOAP AND WATER AFTERWARDS.

**General Instructions**

BECAUSE OF THE CRITICAL OPERATING REQUIREMENTS OF THE SYSTEM, DO NOT ATTEMPT TO SERVICE SENSORS, THE CLOCKSPRING, THE MONITOR, THE BACKUP POWER SUPPLY OR THE AIR BAG. CORRECTIONS ARE MADE BY REPLACEMENT ONLY.

**NOTE: IF A PART IS REPLACED AND THE NEW PART DOES NOT CORRECT THE PROBLEM, INSTALL THE ORIGINAL PART AND PERFORM THE DIAGNOSTIC PROCEDURE AGAIN.**

**NEVER PROBE THE CONNECTORS ON THE AIR BAGS. DOING SO MAY RESULT IN AIR BAG DEPLOYMENT WHICH COULD RESULT IN PERSONAL INJURY.**

**ALL COMPONENT REPLACEMENTS AND WIRING REPAIRS MUST BE MADE WITH THE BATTERY GROUND AND THE BACKUP POWER SUPPLY DISCONNECTED.**

**THE INSTRUCTION "DISCONNECT" ALWAYS REFERS TO A CONNECTOR. NEVER DETACH A COMPONENT FROM THE VEHICLE WHEN INSTRUCTED TO "DISCONNECT."**

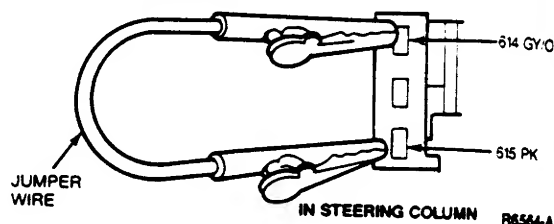
**VEHICLE SENSOR ORIENTATION IS CRITICAL FOR PROPER SYSTEM OPERATION. IF A VEHICLE EQUIPPED WITH AN AIR BAG SYSTEM IS INVOLVED IN A CRASH WHERE THE FENDERS OR GRILLE AREA HAVE BEEN DAMAGED, INSPECT THE SENSOR MOUNTING BRACKETS FOR DEFORMATION. IF DAMAGED, THE SENSOR SHOULD BE REPLACED, WHETHER OR NOT THE AIR BAG IS DEPLOYED. IN ADDITION, ENSURE THAT BODY STRUCTURE IN THE AREA OF SENSOR MOUNTING IS RESTORED TO ITS ORIGINAL CONSTRUCTION.**

**To Deactivate System:**

**NOTE:** Follow Steps 1,2,3,4 and 8 for driver air bags. For passenger air bag (Lincoln Town Car) follow Steps 1,5,6,7 and 8.

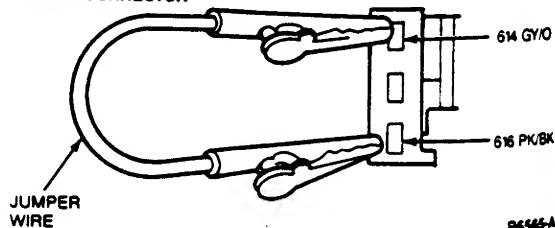
1. Disconnect battery ground cable and backup power supply.
2. Remove four nut and washer assemblies securing driver air bag module to steering wheel.
3. Disconnect driver air bag module connector.
4. Attach jumper wire to air bag terminals on clockspring assembly.

**DRIVER AIR BAG  
CLOCKSPRING CONNECTOR**

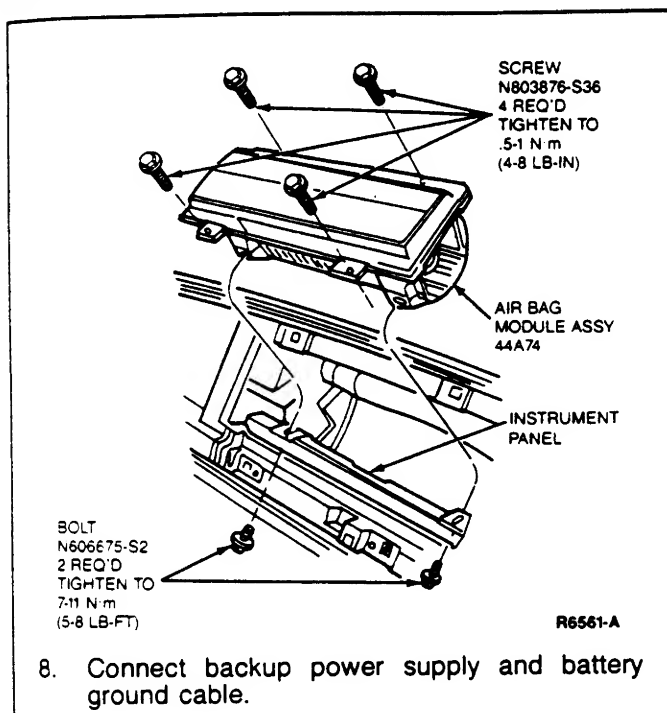


5. Open glove compartment and rotate all the way down, past the stops.
6. Disconnect passenger air bag connector (Lincoln Town Car).
7. Attach jumper wire to air bag terminals on the wiring harness side.

**PASSENGER AIR BAG  
WIRING CONNECTOR**



## SERVICE PRECAUTIONS (Continued)

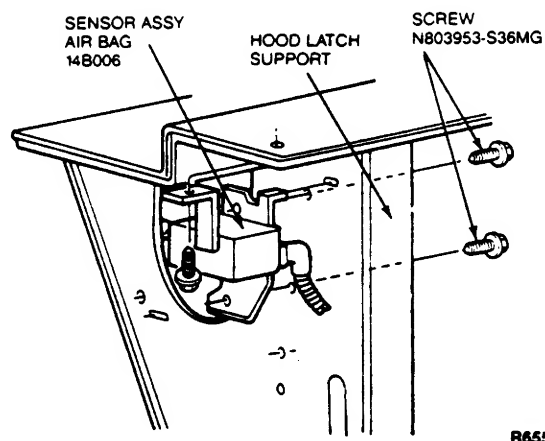
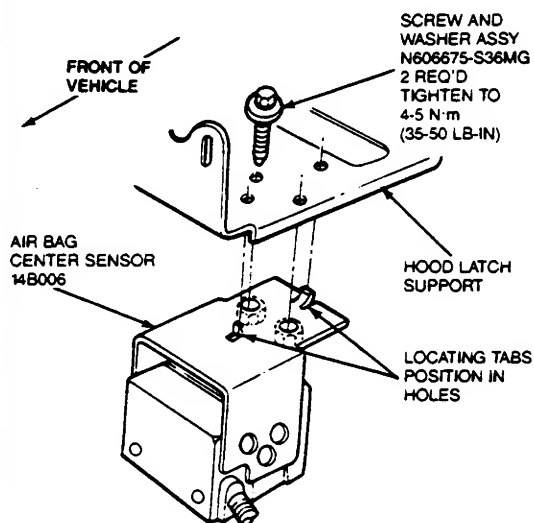
**To Reactivate System:**

1. Disconnect battery ground cable and backup power supply.
2. Remove jumper wire from air bag terminals on clockspring assembly, if connected.
3. Reconnect driver air bag connector.
4. Position driver air bag on steering wheel and secure with four nut and washer assemblies (10mm). Tighten nut and washer assemblies to 4-6 N·m (35-53 lb-in).
5. Remove jumper wire from air bag terminals on passenger air bag wiring connector in harness (Lincoln Town Car).
6. Reconnect passenger air bag connector (Lincoln Town Car).
7. Close glove compartment door (Lincoln Town Car).
8. Connect backup power supply and battery ground cable.
9. Verify air bag lamp.

**REMOVAL AND INSTALLATION****Sensor—Front Center****Removal**

**WARNING: THE ELECTRICAL CIRCUIT NECESSARY FOR SYSTEM DEPLOYMENT IS POWERED DIRECTLY FROM THE BATTERY AND BACKUP POWER SUPPLY. TO AVOID ACCIDENTAL DEPLOYMENT AND POSSIBLE PERSONAL INJURY, THE BATTERY GROUND CABLE AND BACKUP POWER SUPPLY MUST BE DISCONNECTED PRIOR TO SERVICING OR REPLACING ANY SYSTEM COMPONENTS.**

1. Disconnect battery ground cable and backup power supply.
2. Disconnect center front sensor electrical connector and wiring retainer.
3. Remove screws attaching front sensor to radiator support. Remove sensor from vehicle.

**Lincoln Town Car****Ford Crown Victoria/Mercury Grand Marquis****Installation**

1. Position front center sensor with arrow on top pointing toward front of vehicle and secure to radiator support with retaining screws. Tighten vertical retaining screw (two on Ford Crown Victoria/Mercury Grand Marquis) to 4-5 N·m (35-50 lb-in), and horizontal retaining screws (Lincoln Town Car) to 4-6 N·m (39-53 lb-in).



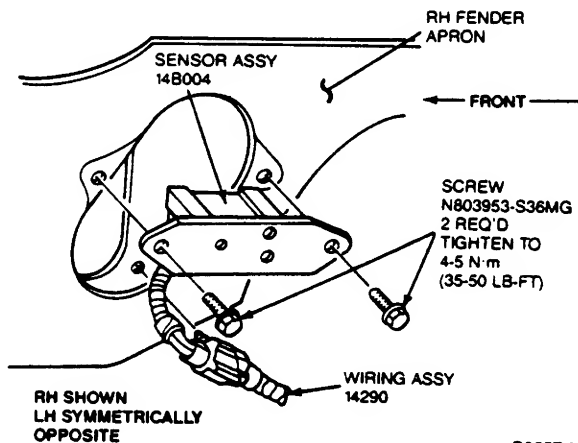
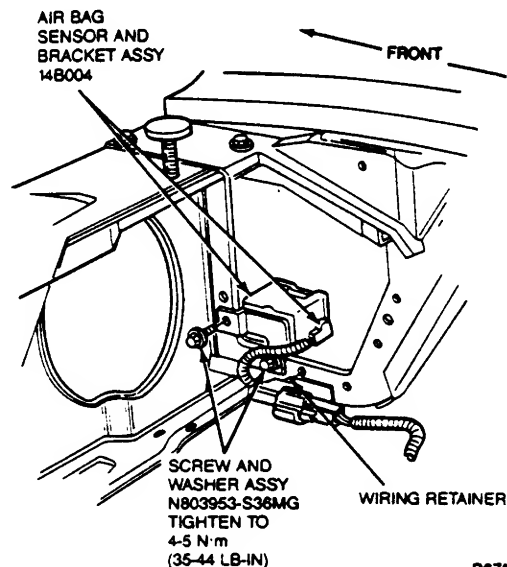
**REMOVAL AND INSTALLATION (Continued)**

2. Connect front center sensor wire lead connector to wiring assembly connector and install wiring retainer.
3. Connect backup power supply and battery ground cable.
4. Verify air bag indicator lamp.

**Sensor—RH Front****Removal**

**WARNING: THE ELECTRICAL CIRCUIT NECESSARY FOR SYSTEM DEPLOYMENT IS POWERED DIRECTLY FROM THE BATTERY AND BACKUP POWER SUPPLY. TO AVOID ACCIDENTAL DEPLOYMENT AND POSSIBLE PERSONAL INJURY, THE BATTERY GROUND CABLE AND BACKUP POWER SUPPLY MUST BE DISCONNECTED PRIOR TO SERVICING OR REPLACING ANY SYSTEM COMPONENTS.**

1. Disconnect battery ground cable and backup power supply.
2. Remove battery.
3. Disconnect RH front sensor electrical connector and wiring retainer.
4. Remove two screws retaining RH front sensor to RH fender apron and remove sensor.

**Lincoln Town Car****Ford Crown Victoria/Mercury Grand Marquis****Installation**

1. Position RH front sensor and wire lead in vehicle and secure sensor to RH fender apron with retaining screws. Tighten screws to 4-5 N·m (35-44 lb-in).
2. Connect RH front sensor wire lead connector to wiring assembly connector and secure wiring retainer.
3. Install battery.
4. Connect backup power supply and battery ground cable.
5. Verify air bag indicator lamp.

**Sensor—LH Front****Removal**

**WARNING: THE ELECTRICAL CIRCUIT NECESSARY FOR SYSTEM DEPLOYMENT IS POWERED DIRECTLY FROM THE BATTERY AND BACKUP POWER SUPPLY. TO AVOID ACCIDENTAL DEPLOYMENT AND POSSIBLE PERSONAL INJURY, THE BATTERY GROUND CABLE AND BACKUP POWER SUPPLY MUST BE DISCONNECTED PRIOR TO SERVICING OR REPLACING ANY SYSTEM COMPONENTS.**

1. Disconnect battery ground cable and backup power supply.
2. Remove washer fluid reservoir.
3. Disconnect LH front sensor electrical connector and wiring retainer.
4. Remove screws retaining LH front sensor to LH fender apron and remove sensor from vehicle.

## REMOVAL AND INSTALLATION (Continued)

## Installation

1. Position LH sensor to LH fender apron and secure with retaining screws. Tighten screws to 4-5 N·m (35-44 lb-in).
2. Connect LH front sensor electrical wiring connector to wiring assembly connector and secure wiring retainer.
3. Install washer fluid reservoir.
4. Connect backup power supply and battery ground cable.
5. Verify air bag indicator lamp.

## Installation

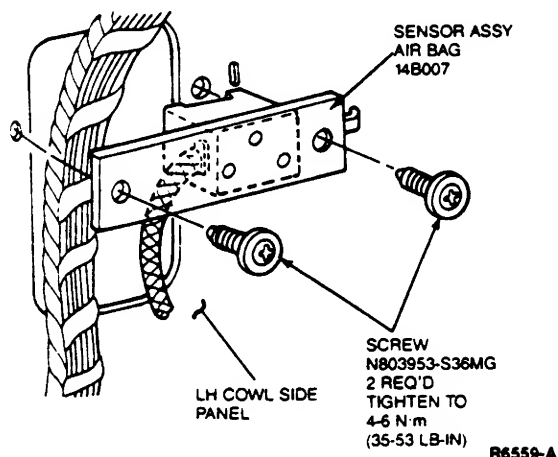
1. Position sensor to cowl side panel.
2. Secure sensor with two screws. Tighten to 4-6 N·m (35-53 lb-in).
3. Connect rear sensor wiring connector to wiring assembly connector.
4. Install connector bracket.
5. Install cowl side trim panel.
6. Connect backup power supply and battery ground cable.
7. Verify air bag indicator lamp.

## Sensor—Rear

## Removal

**WARNING: THE ELECTRICAL CIRCUIT NECESSARY FOR SYSTEM DEPLOYMENT IS POWERED DIRECTLY FROM THE BATTERY AND BACKUP POWER SUPPLY. TO AVOID ACCIDENTAL DEPLOYMENT AND POSSIBLE PERSONAL INJURY, THE BATTERY GROUND CABLE AND BACKUP POWER SUPPLY MUST BE DISCONNECTED PRIOR TO SERVICING OR REPLACING ANY SYSTEM COMPONENTS.**

1. Disconnect battery ground cable and backup power supply.
2. Remove LH cowl side trim panel. Refer to Section 45-03.
3. Remove connector bracket.
4. Disconnect rear sensor wiring connector from wiring assembly connector.
5. Remove two screws attaching rear sensor to LH cowl side panel and remove sensor.



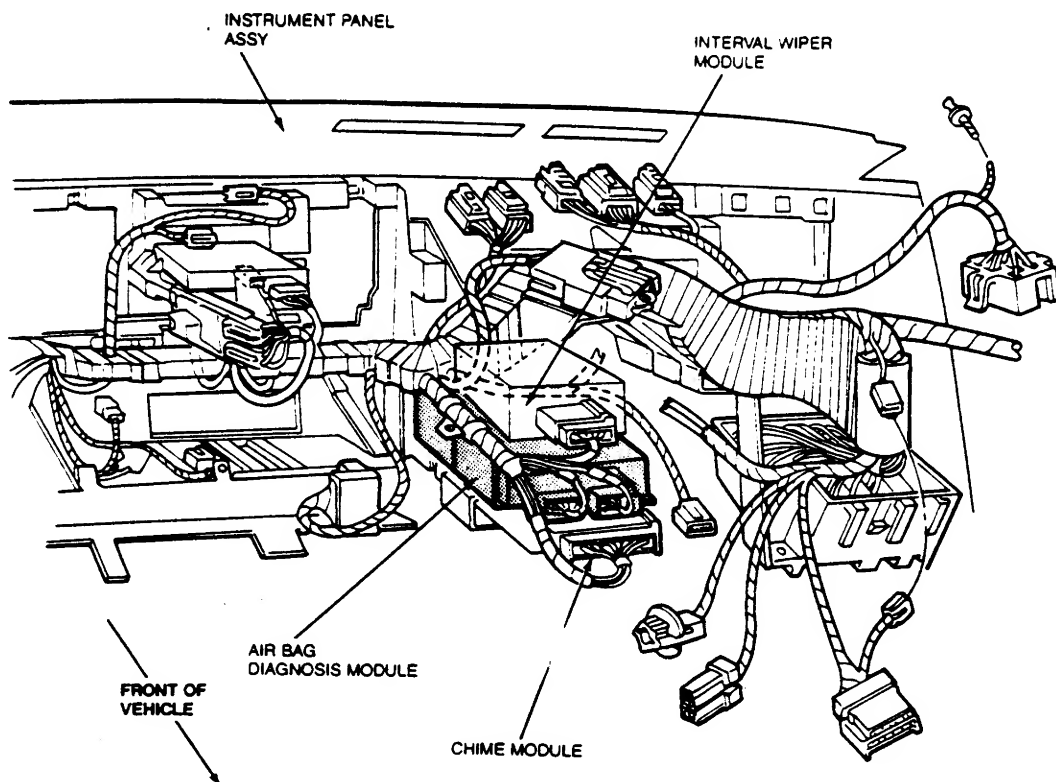
## Diagnostic Monitor

## Removal

**WARNING: THE ELECTRICAL CIRCUIT NECESSARY FOR SYSTEM DEPLOYMENT IS POWERED DIRECTLY FROM THE BATTERY AND BACKUP POWER SUPPLY. TO AVOID ACCIDENTAL DEPLOYMENT AND POSSIBLE PERSONAL INJURY, THE BATTERY GROUND CABLE AND BACKUP POWER SUPPLY MUST BE DISCONNECTED PRIOR TO SERVICING OR REPLACING ANY SYSTEM COMPONENTS.**

1. Disconnect battery ground cable and backup power supply.
2. Remove headlamp switch knob and retaining nut.
3. Remove LH and RH instrument panel mouldings.
4. Remove 12 upper and lower instrument panel finish panel retaining screws and finish panel.
5. Remove two bolts attaching steering column opening cover and pad assembly to instrument panel and remove cover.
6. Remove two screws and pushpin retaining instrument panel insulator and remove insulator.
7. Disconnect diagnostic monitor electrical wiring connectors.
8. Remove two screws attaching diagnostic monitor and bracket assembly and remove assembly.
9. Remove screws attaching monitor to bracket.

## REMOVAL AND INSTALLATION (Continued)



R6560-A

**Installation**

1. Position diagnostic monitor to bracket and install retaining screws.
2. Position diagnostic monitor and bracket assembly on instrument panel and install retaining screws.
3. Connect electrical wiring connectors to the diagnostic monitor and backup power supply.
4. Position insulator assembly on instrument panel and install two screws and push rivet. Tighten screws to 1.5-3 N·m (13-27 lb-in).
5. Position steering column opening cover and pad assembly on instrument panel. Install five retaining screws. Tighten to 9-14 N·m (6-10 lb-ft).
6. Install instrument panel finish panel and retaining screws.
7. Install instrument panel mouldings.
8. Install headlamp switch, retaining nut and knob.
9. Connect battery ground cable.
10. Verify air bag indicator lamp.

**Backup Power Supply****Removal**

**WARNING: THE ELECTRICAL CIRCUIT NECESSARY FOR SYSTEM DEPLOYMENT IS POWERED DIRECTLY FROM THE BATTERY AND BACKUP POWER SUPPLY. TO AVOID ACCIDENTAL DEPLOYMENT AND POSSIBLE PERSONAL INJURY, THE BATTERY GROUND CABLE AND BACKUP POWER SUPPLY MUST BE DISCONNECTED PRIOR TO SERVICING OR REPLACING ANY SYSTEM COMPONENTS.**

1. Disconnect battery ground cable and backup power supply.
2. Remove headlamp switch knob and retaining nut.
3. Remove LH and RH instrument panel mouldings.
4. Remove 12 upper and lower instrument panel finish panel retaining screws and finish panel.
5. Remove two bolts attaching steering column opening cover and pad assembly to instrument panel and remove cover.

**REMOVAL AND INSTALLATION (Continued)**

6. Remove two screws and pushpin retaining instrument panel insulator and remove insulator.
7. Disconnect diagnostic monitor backup power supply electrical wiring connector, mounted to the EEC module bracket.
8. Remove screws attaching EEC module bracket assembly and remove assembly.
9. Remove power supply by depressing retaining tabs to bracket.

**Installation**

1. Position power supply to bracket and install.
2. Position bracket assembly on instrument panel and install retaining screws.
3. Connect electrical wiring connectors to the power supply.
4. Position insulator assembly on instrument panel and install two screws and push rivet. Tighten screws to 1.5-3 N·m (13-27 lb-in).
5. Position steering column opening cover and pad assembly on instrument panel. Install five retaining screws. Tighten to 9-14 N·m (6-10 lb-ft).
6. Install instrument panel finish panel and retaining screws.
7. Install instrument panel mouldings.
8. Install headlamp switch, retaining nut and knob.
9. Connect battery ground cable.
10. Verify air bag indicator lamp.

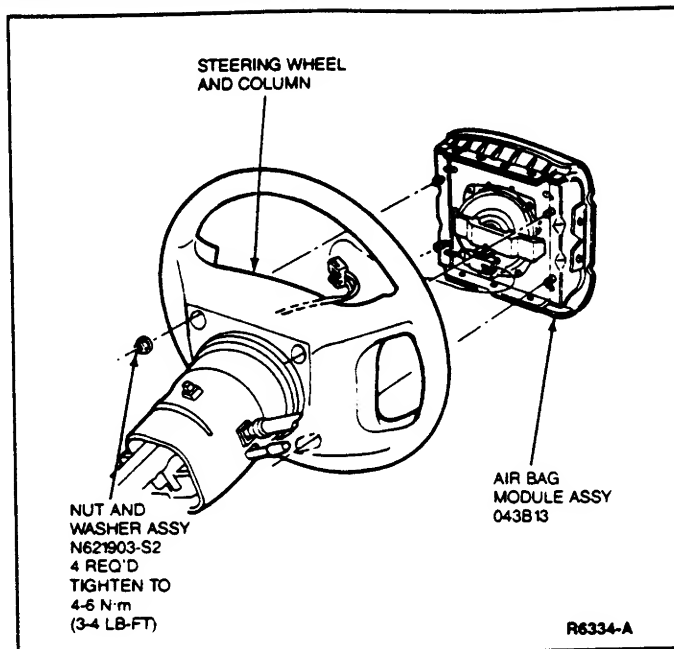
**Air Bag Clockspring**

Refer to Section 13-04.

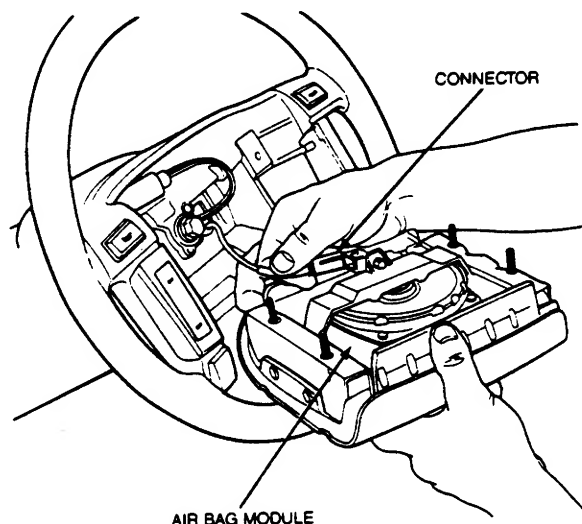
**Driver Air Bag****Removal**

**WARNING: THE ELECTRICAL CIRCUIT NECESSARY FOR SYSTEM DEPLOYMENT IS POWERED DIRECTLY FROM THE BATTERY AND BACKUP POWER SUPPLY. TO AVOID ACCIDENTAL DEPLOYMENT AND POSSIBLE PERSONAL INJURY, THE BATTERY GROUND CABLE AND BACKUP POWER SUPPLY MUST BE DISCONNECTED PRIOR TO SERVICING OR REPLACING ANY SYSTEM COMPONENTS.**

1. Disconnect battery ground cable and backup power supply.
2. Remove four nut and washer assemblies retaining air bag module to steering wheel.



3. Disconnect the air bag electrical connector from clockspring connector. Remove air bag assembly.



**WARNING: PLACE AIR BAG MODULE ON BENCH WITH TRIM COVER FACING UP.**

**Installation**

1. Connect air bag module wiring connector to clockspring connector.
2. Position air bag module to steering wheel and secure with four nut and washer assemblies. Tighten to 4-6 N·m (35-53 lb-in).
3. Connect backup power supply and battery ground cable.
4. Verify air bag indicator lamp.

## REMOVAL AND INSTALLATION (Continued)

## Passenger Air Bag

## Lincoln Town Car

## Removal

**WARNING: THE ELECTRICAL CIRCUIT NECESSARY FOR SYSTEM DEPLOYMENT IS POWERED DIRECTLY FROM THE BATTERY AND BACKUP POWER SUPPLY. TO AVOID ACCIDENTAL DEPLOYMENT AND POSSIBLE PERSONAL INJURY, THE BATTERY GROUND CABLE AND BACKUP POWER SUPPLY MUST BE DISCONNECTED PRIOR TO SERVICING OR REPLACING ANY SYSTEM COMPONENTS.**

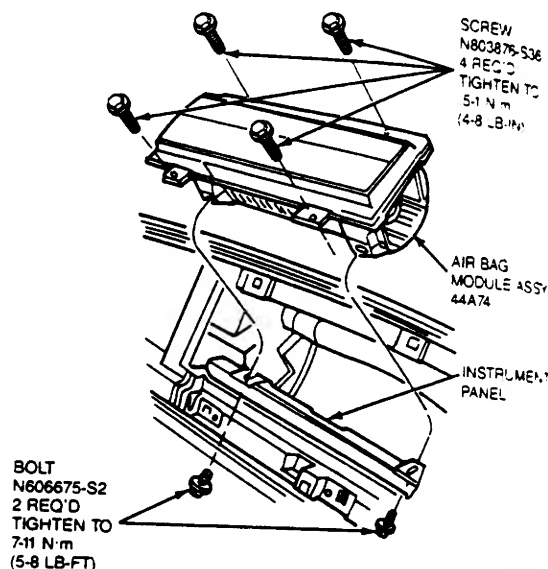
1. Disconnect battery ground cable and backup power supply.
2. Remove RH instrument panel.
3. Remove instrument panel finish panel retaining screws and remove panel.
4. Open glove compartment, press sides inward and lower glove compartment to floor.
5. Through glove compartment opening, remove two air bag module retaining screws.
6. Remove four remaining air bag module retaining screws, disconnect electrical connector and remove module.

**WARNING: PLACE AIR BAG MODULE ON BENCH WITH TRIM COVER FACING UP.**

## Installation

1. Connect electrical connector to air bag module and position module in instrument panel.
2. Install four upper retaining screws. Tighten to 0.5-1.0 N·m (4-8 lb-in).
3. Install lower module retaining bolts. Tighten to 7-11 N·m (6-8 lb-ft).

4. Return glove compartment to correct position.
5. Install instrument panel finish panel with 12 retaining screws. Tighten upper screws to 9-14 N·m (6-10 lb-ft). Tighten lower screws to 2-4 N·m (17-35 lb-in).
6. Install instrument panel mouldings.
7. Connect backup power supply and negative battery terminal.
8. Verify air bag indicator lamp.



R6561-A

## Trim Panel and Steering Column Opening

## Removal and Installation

Refer to Section 13-04.

## DISPOSAL PROCEDURES

Several situations may arise when some form of disposal action must be undertaken, scrapping a vehicle containing a deployed air bag; scrapping a vehicle with a live air bag, disposal of a live but

electrically inoperative air bag module, and scrapping a deployed module. These situations and the disposal recommendations are shown in the following chart and discussed in detail below.

## AIR BAG DISPOSAL RECOMMENDATIONS

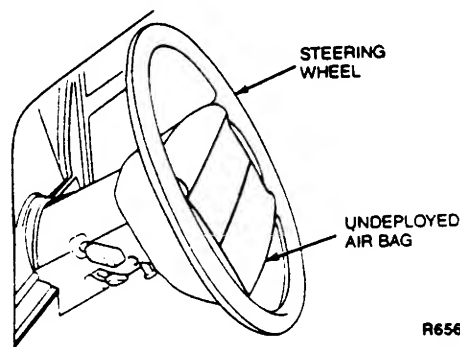
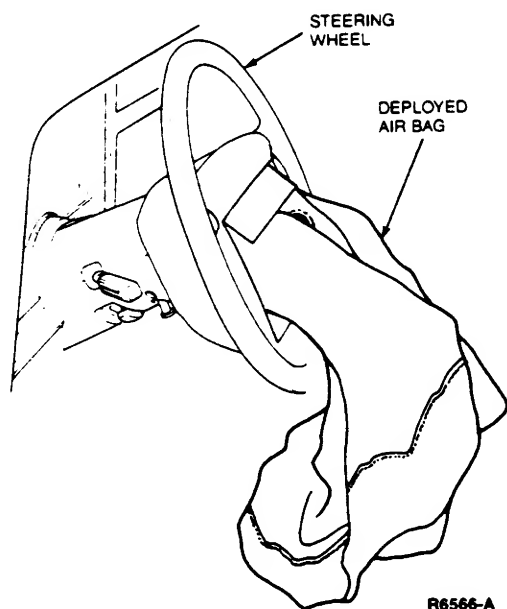
Condition	Instructions
1. Vehicle to be Scrapped; Live Air Bags.	Electrically Deploy Using Procedures 1 or 2 as Required.
2. Vehicle to be Scrapped; Deployed Air Bags.	Scrap Vehicle in the Usual Manner.
3. <del>Vehicle</del> Replaced; Damaged but Live Air Bags.	Package and Label Properly. Return to Ford.
Replaced; Deployed Air Bags.	Scrap Air Bags in the Usual Manner.

CR6190-A

## DISPOSAL PROCEDURES (Continued)

## Deployed Air Bags

To service a vehicle in which the air bags have deployed, the deployed driver air bags must be replaced with all new air bags. The deployed air bags can be disposed of in the same manner as any part to be scrapped.



## Air Bag Disposal

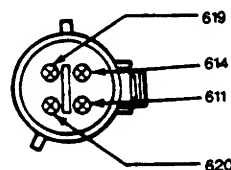
## Procedure 1

## Electronic Deployment with Intact Wiring

This procedure is to be used in the event that a vehicle with a live air bag is to be scrapped. Scrappage may be required due to severe damage in a non-air bag deployable accident, or at the end of the vehicle's useful life. This procedure assumes that the air bag wiring remains intact; that is, no fault codes are indicated by the readiness indicator, that the system proves out correctly, and that the vehicle's battery is still in place (or one has been provided). This procedure is to be performed outdoors away from other personnel, since the deploying air bags make a loud report upon actuation.

1. Check and clear the front seat of all loose objects.
2. Do not permit any occupants to remain inside the vehicle.
3. Open the hood and check for an operational vehicle battery. If no battery is found, supply one and connect it in the usual manner.
4. Turn the ignition switch to the RUN position and observe the air bag readiness indicator. If the lamp illuminates for six seconds and then stops, the system is intact and may be deployed. Continue with Procedure 1. If a series of fault codes appears, go to Procedure 2 to deploy the unit.
5. Locate the center air bag sensor at the hood latch support. Locate the connector on the wiring from the sensor.
6. Pull the submersible connector apart and examine the wiring harness end of the connector (not the sensor end). Identify circuits 619 PK/W, 620 P/LB, 611 W/O and 614 GY/O.

## Center Air Bag Sensor Connector



## Undeployed Air Bag—Inoperative

In the event that an air bag is diagnosed as inoperative, (refer to Diagnostic Procedures), the inoperative air bag must be replaced by a new air bag. The inoperative air bag **CANNOT BE DISPOSED OF IN THE USUAL MANNER**, and must be returned to Ford Motor Company for proper disposal.

Air bags must be packaged and shipped according to the U.S. Department of Transportation regulations. Retain packaging used for replacement air bags, including the labeling. Return air bags according to the instructions provided with replacement air bags.

## Scrapped Vehicle

Some vehicles may be damaged or inoperable to the point that service cannot be made, but still contain undeployed air bags. This condition could occur by side or rear impact, or rollover, or if the vehicle is simply past its useful lifetime. **THE AIR BAGS SHOULD BE DEPLOYED PRIOR TO VEHICLE SCRAPPAGE, PER PROCEDURES 1 OR 2 BELOW.**

## DISPOSAL PROCEDURES (Continued)

7. Using a 152mm (6 inch) length of bared wire, short the 619 PK/W wire to ground. Again, ensuring there are no occupants in the vehicle, short the 611 W/O and 614 GY/O circuits together with a second bared wire. The air bags should deploy. If the air bags do not deploy, go to Procedure 2.
8. If successful, a loud report will be heard and the bag material will be visible in the center of the steering wheel and above the glove compartment. Allow at least 10 minutes before approaching the air bag to allow for cooling, and dissipation of the effluents.

The air bag(s) is now inoperative and the vehicle may be scrapped in the usual manner.

## Procedure 2

## Remote Deployment of Air Bags

This procedure is to be used in the event that a vehicle with live air bags is to be scrapped, but the vehicle does not contain an intact wiring harness or certain system components are inoperative. This procedure can also be used if Step 7 of Procedure 1 was unsuccessful.

**WARNING: REMOTE DEPLOYMENT IS TO BE PERFORMED OUTDOORS WITH ALL PERSONNEL AT LEAST 20 FEET AWAY TO ENSURE PERSONNEL SAFETY AND DUE TO THE LOUD REPORT WHICH OCCURS WHEN DRIVER AIR BAGS ARE DEPLOYED.**

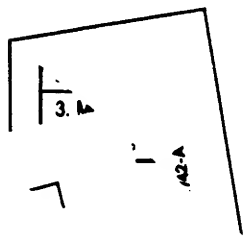
1. Remove the driver and passenger air bags from the vehicle as outlined.
2. Cut the two module connector wires and strip 25mm (1 inch) of insulation from the ends. Obtain two wires at least 20 feet long. Connect one end of each wire to each of the air bag module wires.
3. Place the air bag with the trim cover facing upward on a flat surface in a remote area such as a parking lot or field.

**WARNING: DO NOT PLACE THE AIR BAG WITH THE TRIM COVER FACING DOWN, AS THE FORCES OF THE DEPLOYING AIR BAG MAY CAUSE IT TO RICOCHET AND CAUSE PERSONAL INJURY.**

4. Remaining at least 20 feet away from the air bag, deploy it by touching the other ends of the two wires to the terminals of a 12 volt vehicle battery.

Loud report will be heard and the bag material will be visible. Allow at least 10 minutes before approaching the air bag to allow for cooling, and dissipation of the effluents.

The air bag(s) is now inoperative and may be scrapped in the usual manner.



## DIAGNOSIS AND TESTING

The diagnostic monitor has a coded flashing indicator lamp feature which assists in isolating system malfunctions or faults. The codes are produced by a series of air bag lamp flashes. Each flash is on for about one-half second and off for about one-half second. The number of flashes in each series is based on the type of fault being detected. The code (series of flashes) is repeated when the ignition switch is in the RUN position and a fault exists. The coded fault feature is prioritized so that if two or more different faults occur at the same time, the highest priority fault indication will be shown until corrected.

**NOTE:** If a system fault exists and the lamp is malfunctioning, an audible tone will be heard indicating the need for service. The tone produced is a series of five sets of five beeps. The number of beeps does not indicate the fault code; it means the lamp is out and a fault is present.

The faults and associated codes are listed in the Fault Code Priorities chart in the order that they are ranked from top to bottom. In other words, the code at the top of the list has the highest priority (or ranking) and would be shown over any other code by the air bag lamp. The code at the bottom of the list has the lowest priority (or ranking). These listings are for information only and should not be used for system diagnosis or troubleshooting. The following diagnostic charts and deactivation procedure should be used to pinpoint the specific fault and to safely diagnose and service the system. However, if after using the diagnostic charts, the fault is not located, proceed to the diagnostic schematic to perform additional diagnostic checks to determine and correct uncommon faults.

"Check Connection" means inspect connector for proper seating to mating connector, inspect terminals for good contact and inspect wiring for proper crimping to terminal.

All continuity checking is done with the system deactivated. This means that the air bags are disconnected and jumper wires are installed.

"Disconnect" does not mean removal.

A disconnected part is not reconnected until specific reconnect instruction is given.

The following test equipment is used:

- Dwell-Tach-Volt-Ohms Tester Rotunda 059-00010 or equivalent.
- Jumper Wires.

**NOTE:** Attach positive (+) lead to circuit voltage and negative (-) lead to specified ground. (If a Digital Voltmeter is used on circuits 608 and 609 with monitor disconnected, the readout will not indicate the correct voltage).

## DIAGNOSIS AND TESTING (Continued)

All resistance checks must be made with the negative lead of the ohmmeter at vehicle ground, not battery ground, unless specifically directed otherwise. Three places are recommended; the metal bracket of starter relay, the ignition lock cylinder on the steering column, or the ground wire from harness under RH side of instrument panel.

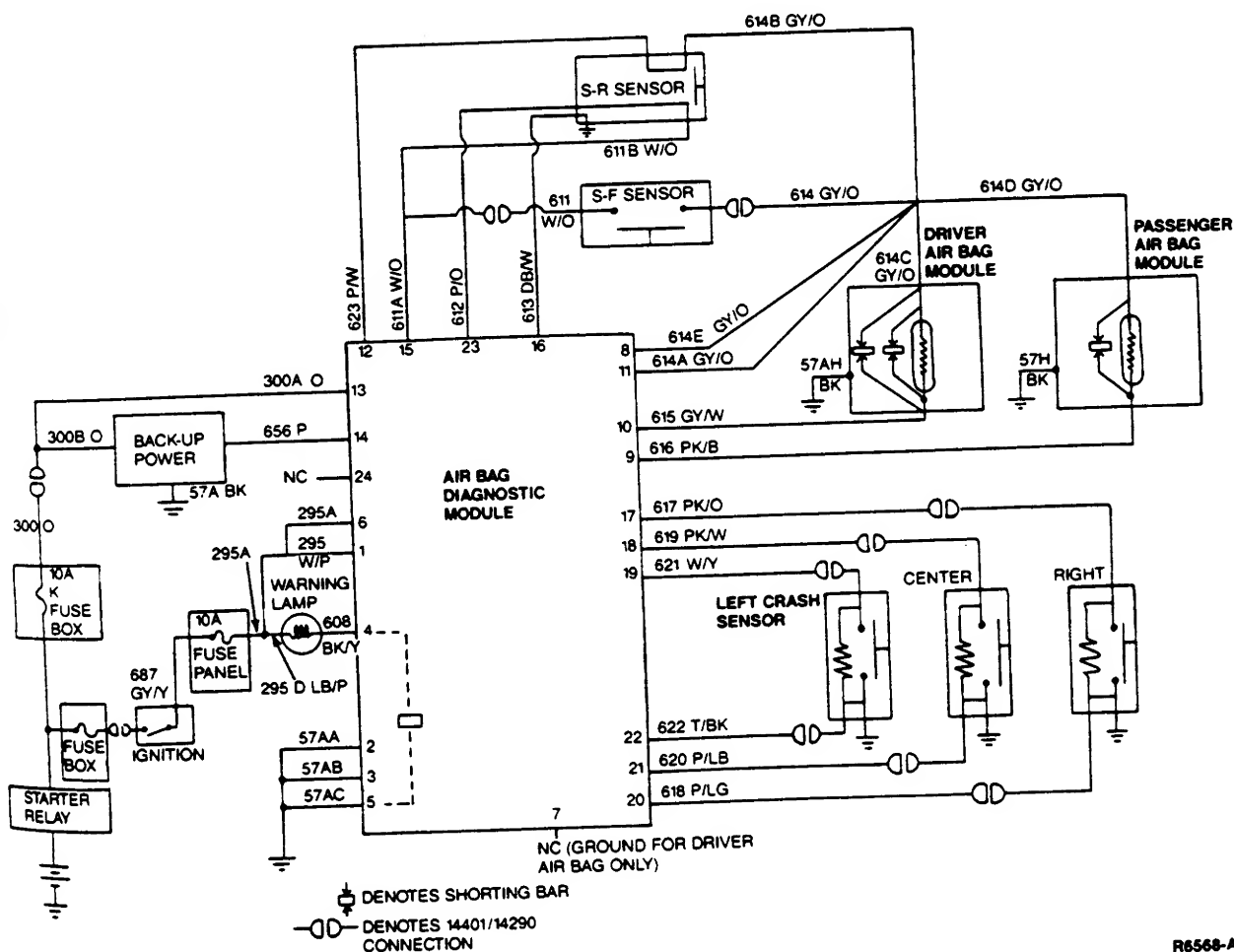
Refer to the Fault Code Priorities Chart, the System Schematic, Connector Illustration and the Diagnosis Charts for Diagnosis and Testing.

VERIFY AIR BAG LAMP means to turn the ignition switch to RUN and count the flashes only after the

code (series of flashes) has cycled twice. If the air bag lamp comes on continuously for four to eight seconds and then goes out, the system is functioning properly and all faults have been serviced.

NOTE: The following Diagnosis and Testing applies to Lincoln Town Car vehicles. Diagnosis and Testing for Ford Crown Victoria/Mercury Grand Marquis vehicles follows Diagnosis and Testing for Lincoln Town Car.

### Air Bag System Schematic Lincoln Town Car



R6568-A



## DIAGNOSIS AND TESTING (Continued)

## FAULT CODE PRIORITIES

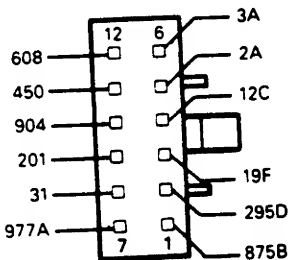
Number of Flashes	Probable Fault
No Lamp	Inoperative air bag indicator lamp circuit
Continuous Lamp	Faulty monitor or disconnected or loose monitors
3	Loss of air bag deployment circuit power. Backup power supply disconnected
5	Shorted forward impact sensor deployment circuit or potential short in air bag deployment circuit
10	Faulty firing circuit disarm device
4	Potential short in air bag deployment circuit. Must use Diagnosis Guide No. 4 for diagnosis
6	Driver air bag circuit inoperative
7	Passenger air bag circuit inoperative
8	Forward impact sensor improperly attached or grounded
9	Open forward impact sensor deployment circuit
2	All forward impact sensors disconnect

CR6191-B

## DIAGNOSIS AND TESTING (Continued)

# Fault Indication — Air Bag Lamp Does Not Light

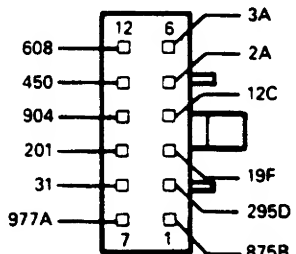
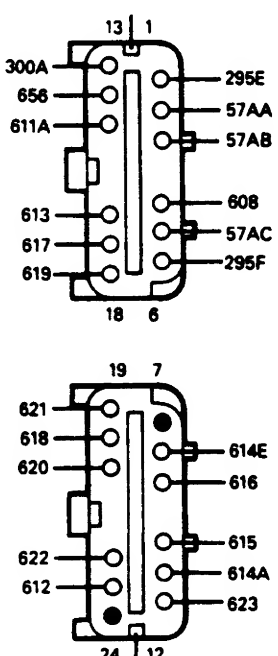
## Probable Fault — Inoperative Air Bag Lamp Circuit

TEST STEP		RESULT	ACTION TO TAKE
A0	DURING SYSTEM PROVE-OUT AIR BAG INDICATOR LAMP DID NOT LIGHT		
A1	CHECK WARNING LAMPS		
	<ul style="list-style-type: none"> <li>• Turn ignition switch from OFF to RUN.</li> <li>• Warning lamps should light.</li> <li>• Do Engine and Safety Belt warning lamps light?</li> </ul>	Yes	GO to A6.
		No	GO to A2.
A2	CHECK FUSE		
	<ul style="list-style-type: none"> <li>• Turn ignition switch to OFF.</li> <li>• Check warning lamps fuse.</li> <li>• Is fuse blown?</li> </ul>	Yes	GO to A3.
		No	GO to A4.
A3	REPLACE FUSE		
	<ul style="list-style-type: none"> <li>• Install new fuse into fuse panel.</li> <li>• Turn ignition switch to RUN.</li> <li>• Did fuse blow again?</li> </ul>	No	VERIFY Engine Safety Belt and Air Bag warning lamps.
	 <p>CLUSTER CONNECTOR</p>	Yes	TURN ignition switch to OFF. DEACTIVATE air bag system. TRACE Circuit 295 (LB/P) from IP shelf moulding connector to fuse panel, to find short to ground and SERVICE. REACTIVATE system and VERIFY warning lamps.
A4	RECHECK WARNING LAMPS		
	<ul style="list-style-type: none"> <li>• Remove cluster connector, then reconnect connector.</li> <li>• Turn ignition switch from OFF to RUN.</li> <li>• Verify Engine and Safety Belt warning lamps.</li> <li>• Do Engine and Safety Belt warning lamps light?</li> </ul>	No	GO to A5.
		Yes	VERIFY Engine, Safety Belt and Air Bag warning lamps.

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Does Not Light

### Probable Fault — Inoperative Air Bag Lamp Circuit

	TEST STEP	RESULT	ACTION TO TAKE
<b>A5</b>	<b>CHECK CIRCUIT 640 (R/Y) FOR OPEN CIRCUIT</b>		
	<ul style="list-style-type: none"> <li>• Turn ignition switch to OFF.</li> <li>• Deactivate air bag system.</li> <li>• Remove warning lamps fuse.</li> <li>• Attach ohmmeter to Circuit 295 (LB/P) at fuse panel and instrument panel cluster connector.</li> <li>• Is resistance less than 1 ohm?</li> </ul>  <p style="text-align: center;">CLUSTER CONNECTOR</p>	<p>Yes</p> <p>No</p>	<p>REPLACE cluster as required.</p> <p>REACTIVATE system and VERIFY warning lamps.</p> <p>TRACE Circuit 295 (LB/P) from cluster connector to fuse panel to find open in circuit, and REPAIR.</p> <p>REACTIVATE air bag system and VERIFY warning lamps.</p>
<b>A6</b>	<b>CHECK THAT MONITOR CONNECTOR IS PROPERLY CONNECTED</b>		
	 <p>DIAGNOSTIC MONITOR CONNECTOR (GRAY)</p> <p>DIAGNOSTIC MONITOR CONNECTOR (BLACK)</p>	<p>Yes</p> <p>No</p>	<p>GO to A7.</p> <p>Properly connect diagnostic monitor connectors. VERIFY Air Bag lamp. If Air Bag lamp does not light GO to A8.</p>

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Does Not Light

### Probable Fault — Inoperative Air Bag Lamp Circuit

TEST STEP		RESULT	ACTION TO TAKE
<b>A7</b>	<b>CHECK LAMP WITH MONITOR CONNECTOR DISCONNECTED</b>		
<ul style="list-style-type: none"> <li>• Turn ignition switch to OFF.</li> <li>• Disconnect diagnostic monitor wiring from monitor assembly.</li> <li>• Turn ignition to RUN.</li> <li>• Is the Air Bag lamp lit continuously?</li> </ul>		No	GO to A8.
		Yes	GO to A9.
<b>A8</b>	<b>CHECK MONITOR CONNECTOR</b>		
<ul style="list-style-type: none"> <li>• Turn ignition switch to OFF.</li> <li>• Deactivate Air Bag system.</li> <li>• Visually inspect the monitor wiring connector to be sure Pin 5 (Circuit 57, BK) and Pin 4 (Circuit 608, BK/Y) are touching each other.</li> <li>• Turn ignition to RUN.</li> <li>• Does Air Bag lamp light continuously?</li> </ul>		Yes	GO to A9.
		No	GO to A10.

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Does Not Light

### Probable Fault — Inoperative Air Bag Lamp Circuit

TEST STEP		RESULT	ACTION TO TAKE
<b>A9</b>	<b>CHECK CIRCUIT 295 (LB/PK)</b>		
<ul style="list-style-type: none"> <li>• Turn ignition switch to OFF.</li> <li>• Deactivate Air Bag system.</li> <li>• Attach voltmeter to Pin 6 (Circuit 295, LB/PK) on monitor wiring connector and to ground.</li> <li>• Turn ignition switch to RUN.</li> <li>• Is voltage greater than 10 volts?</li> </ul>		Yes	TURN ignition switch to OFF. REPLACE diagnostic monitor.  REACTIVATE air bag system.  TURN ignition switch to RUN. VERIFY Air Bag warning lamp.
		No	TURN ignition switch to OFF. CHECK fuse No. 4 (10 amp). REPLACE fuse if blown and/or trace Circuit 295 (LB/PK) from monitor wiring connector Pin 6 to fuse panel to find open and/or short to ground, and SERVICE.  REACTIVATE air bag system. Turn ignition to RUN. VERIFY Air Bag warning lamp.
<b>A10</b>	<b>JUMP CIRCUIT 57 (BK)</b>		
<ul style="list-style-type: none"> <li>• Reconnect diagnostic monitor assembly connector.</li> <li>• Attach a jumper wire to Pin 5 (Circuit 57, BK) through back of monitor wiring connector and to ground.</li> <li>• Does Air Bag lamp light?</li> </ul>		Yes	TURN ignition to OFF. REMOVE jumper wire. SERVICE ground circuit. REACTIVATE air bag system.  TURN ignition switch to RUN.  VERIFY Air Bag warning lamp.
		No	GO to A11.

## DIAGNOSIS AND TESTING (Continued)

**Fault Indication — Air Bag Lamp Does Not Light**  
**Probable Fault — Inoperative Air Bag Lamp Circuit**

TEST STEP		RESULT	ACTION TO TAKE
A11	INSPECT CLUSTER PRINTED CIRCUIT		
<ul style="list-style-type: none"><li>• Turn ignition switch to OFF.</li><li>• Remove jumper wire.</li><li>• Disconnect Air Bag lamp.</li><li>• Visually inspect connector, wire and Air Bag lamp.</li><li>• Does circuit or connector have any defects and/or is indicator operating properly?</li></ul>		Yes	▶ REPLACE connector and/or cluster as required. ACTIVATE air bag system. TURN ignition switch to RUN. VERIFY Air Bag warning lamp.
		No	▶ TRACE Circuit 608 (BK/Y) from lamp to monitor to find open and SERVICE. REACTIVATE air bag system. TURN ignition to RUN. VERIFY Air Bag warning lamp.

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Stays On

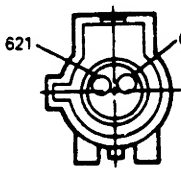
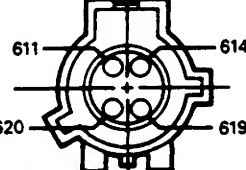
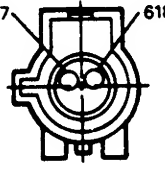
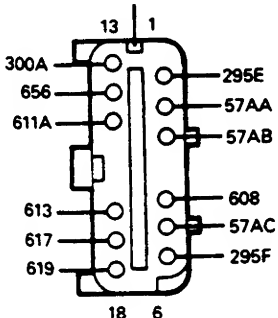
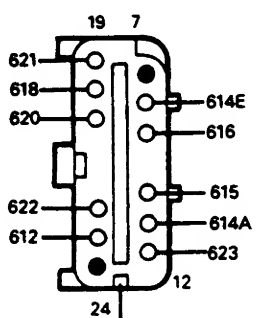
### Probable Fault — Diagnostic Monitor Disconnected or Faulty

TEST STEP		RESULT	ACTION TO TAKE
<b>B0</b>	DURING SYSTEM PROVE-OUT AIR BAG LAMP STAYS ON		
<b>B1</b>	CHECK DIAGNOSTIC MONITOR		
	<ul style="list-style-type: none"> <li>Visually inspect diagnostic monitor for proper connection to monitor wiring connector.</li> <li>Is monitor properly connected?</li> </ul>	Yes	GO to <b>B2</b> .
		No	MAKE connection. VERIFY light.
<b>B2</b>	CHECKING DIAGNOSTIC MONITOR — CONTINUED		
	<ul style="list-style-type: none"> <li>Disconnect diagnostic monitor.</li> <li>Insert toothpick or other non-conducting object to wiring connector between Pins 4 and 5, to depress shorting bar between the two terminals.</li> <li>Verify Air Bag lamp.</li> <li>Is Air Bag lamp still on continuously?</li> </ul>	No	REPLACE diagnostic monitor. REMOVE object. RECONNECT system. VERIFY Air Bag lamp.
		Yes	TRACE Circuit 608 (BK/Y) from diagnostic monitor to find contact to ground and SERVICE. RECONNECT system. VERIFY Air Bag lamp.

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Eight Times

### Probable Fault — All Forward Crash Sensors Disconnected

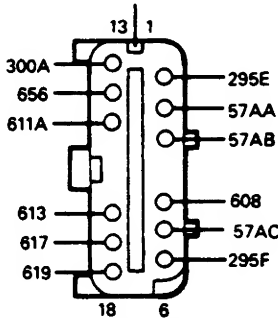
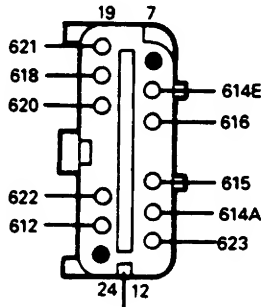
TEST STEP	RESULT	ACTION TO TAKE
<b>2.0 DURING SYSTEM PROVE-OUT AIR BAG LAMP PROVIDES A FAULT INDICATOR OF 2 FLASHES</b>		
<b>2.1 INSPECT FRONT SENSORS</b> <ul style="list-style-type: none"> <li>Visually inspect all three front sensor assembly connections.</li> </ul> <div style="display: flex; justify-content: space-around; align-items: center;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">LH FORWARD SENSOR</div> <div style="text-align: center;">CENTER FORWARD SENSOR</div> <div style="text-align: center;">RH FORWARD SENSOR</div> </div>	<p>All three sensors are properly connected</p> <p>One or all sensors are not properly connected</p>	<p>GO to 2.2.</p> <p>Property connect the sensor(s) or 8-way connector. VERIFY Air Bag lamp.</p>
<b>2.2 INSPECT WIRING CONNECTORS</b> <ul style="list-style-type: none"> <li>Deactivate air bag system.</li> <li>Disconnect diagnostic monitor.</li> <li>Visually inspect monitor wiring connector for proper connection at Pin numbers: 17 (617, PK/O) 18 (619, PK/W) 20 (618, P/LG) 21 (620, P/LB) 22 (622, T/BK) 19 (621, W/Y)</li> <li>Are all connections made?</li> </ul> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">DIAGNOSTIC MONITOR CONNECTOR (GRAY)</div> <div style="text-align: center;">DIAGNOSTIC MONITOR CONNECTOR (BLACK)</div> </div>	<p>Yes</p> <p>No</p>	<p>GO to 2.3.</p> <p>SERVICE connections. RECONNECT system. VERIFY Air Bag lamp. REACTIVATE system.</p>



## DIAGNOSIS AND TESTING (Continued)

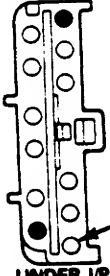
## Fault Indication — Air Bag Lamp Flashes Two Times

### Probable Fault — All Forward Crash Sensors Disconnected

TEST STEP				RESULT	ACTION TO TAKE
2.3	CHECK RESISTANCE IN DIAGNOSTIC MONITOR CIRCUITS			<div>Yes</div> <div>Resistance is NOT between 1000-1300 ohms on one or more of the tests.</div>	<div>▶ REPLACE diagnostic monitor. VERIFY Air Bag lamp. REACTIVATE system.</div> <div>▶ TRACE appropriate circuit(s), find open and SERVICE. CONNECT Diagnostic monitor. VERIFY Air Bag lamp. REACTIVATE system.</div>
<div>● Perform all of the following circuit tests with monitor disconnected.</div> <div>● Attach the lead of the ohmmeter to each set of pins indicated on the diagnostic monitor wiring connector to check the resistance between them.</div>					
Pin A	Pin B	Corresponding Sensor	Circuits		
17	20	Right	617 (PK/O) 618 (P/LG)		
19	22	Left	621 (W/Y) 622 (T/BK)		
18	21	Center	619 (PK/W) 620 (P/LB)		
<div>● Is the resistance between 1000-1300 ohms for each test?</div> <div><div><p>DIAGNOSTIC MONITOR CONNECTOR (GRAY)</p></div><div><p>DIAGNOSTIC MONITOR CONNECTOR (BLACK)</p></div></div>					

## DIAGNOSIS AND TESTING (Continued)

# **Fault Indication — Air Bag Lamp Flashes Three Times** **Probable Fault — Loss of Air Bag Circuit Deployment Power** **and/or Backup Power Supply Disconnected**

TEST STEP		RESULT	ACTION TO TAKE
3.0	DURING SYSTEM PROVE-OUT AIR BAG LAMP PROVIDES A FAULT INDICATION OF 3 FLASHES		
3.1	VISUAL INSPECTION OF FUSIBLE LINK IN CIRCUIT 37 (Y)		
	<ul style="list-style-type: none"> <li>Visually inspect fuse in fuse panel (10 amp position K), for damage.</li> <li>Is fuse link open (blown)?</li> </ul>	Yes	DISCONNECT battery ground cable and backup power supply. TRACE Circuit to find short to ground and SERVICE. REPLACE fuse. RECONNECT battery backup power supply and ground cable. VERIFY Air Bag lamp.
		No	GO to 3.2.
3.2	CHECK VOLTAGE OF CIRCUIT 300 (O)		
	<ul style="list-style-type: none"> <li>Deactivate air bag system.</li> <li>Disconnect diagnostic monitor.</li> <li>Attach a voltmeter to Pin 13, Circuit 300 (O) on diagnostic monitor wiring connector and to ground.</li> <li>Is voltage greater than 10 volts?</li> </ul>	No	DISCONNECT battery ground cable and backup power supply. TRACE Circuit 300 (O) from diagnostic monitor connector to find open circuit and SERVICE. RECONNECT backup power supply and battery ground cable. VERIFY Air Bag lamp. REACTIVATE system.
	 <p>AIR BAG MONITOR CONNECTOR</p> <p>PIN 13 CIRCUIT 300 (O)</p> <p>UNDER 1/P</p>	Yes	GO to 3.3.
3.3	CHECK BACKUP POWER SUPPLY		
	<ul style="list-style-type: none"> <li>Attach a voltmeter to Pin 14, Circuit 656 (P) on diagnostic wiring connector and ground.</li> <li>Is voltage greater than 10 volts?</li> </ul>	Yes	GO to 3.4.
		No	CHECK backup power supply. SERVICE as required. If OK, CHECK Circuit 656 (P) and Circuit 300 (O) for opens. SERVICE as required. RECONNECT battery ground cable and backup power supply. VERIFY Air Bag lamp. REACTIVATE system.

## DIAGNOSIS AND TESTING (Continued)

**Fault Indication — Air Bag Lamp Flashes Three Times**  
**Probable Fault — Loss of Air Bag Circuit Deployment Power**  
**and/or Backup Power Supply Disconnected**

TEST STEP		RESULT	ACTION TO TAKE
3.4	CHECK RESISTANCE IN CIRCUIT 611 (W/O)		
<ul style="list-style-type: none"> <li>Using an ohmmeter find resistance in Pin 15 Circuit 611 (W/O) on diagnostic monitor wiring connector and to ground.</li> <li>Is resistance less than 1 ohm?</li> </ul>		No	REPLACE diagnostic monitor. RECONNECT system. VERIFY Air Bag lamp. REACTIVATE system.
		Yes	GO to 3.5.
3.5	CHECK RESISTANCE IN CIRCUIT 611 (W/O) — CONTINUED		
<ul style="list-style-type: none"> <li>Disconnect rear safing sensor.</li> <li>Attach ohmmeter to Pin 15 (Circuit 611, W/O) on diagnostic monitor wiring connector and to ground.</li> <li>Is resistance less than 1 ohm?</li> </ul>		No	GO to 3.7.
		Yes	GO to 3.6.
3.6	CHECK RESISTANCE IN CIRCUIT 611 (W/O) — CONTINUED		
<ul style="list-style-type: none"> <li>Disconnect center front sensor.</li> <li>Attach ohmmeter to Pin 15 (611 W/O) on diagnostic monitor wiring connector and to ground.</li> <li>Is resistance less than 1 ohm?</li> </ul>		No	REPLACE center front sensor. REPLACE diagnostic monitor. RECONNECT system. VERIFY Air Bag lamp. REACTIVATE system.
		Yes	TRACE Circuit 611 (W/O) to find contact to ground and SERVICE. REPLACE diagnostic monitor. RECONNECT system. VERIFY Air Bag lamp. REACTIVATE system.

## DIAGNOSIS AND TESTING (Continued)

# **Fault Indication — Air Bag Lamp Flashes Three Times** **Probable Fault — Loss of Air Bag Circuit Deployment Power** **and/or Backup Power Supply Disconnected**

TEST STEP	RESULT	ACTION TO TAKE
<b>3.7 CHECK RESISTANCE IN CIRCUIT 612 (P/O)</b>		
<ul style="list-style-type: none"> <li>• Attach ohmmeter to Circuit 612 (P/O) on rear safing sensor wiring connector and to ground.</li> <li>• Is resistance less than 1 ohm?</li> </ul> <div> <p>REAR SAFING SENSOR CONNECTOR</p> </div> <div> <p>REAR SAFING SENSOR HARNESS CONNECTOR</p> </div>	<p>No</p> <p>Yes</p>	<p>▶ REPLACE rear safing sensor. REPLACE diagnostic monitor. RECONNECT system. VERIFY Air Bag lamp. REACTIVATE system.</p> <p>▶ TRACE Circuit 612 (P/O) to find contact to ground and SERVICE. REPLACE diagnostic monitor. RECONNECT system. VERIFY Air Bag lamp. REACTIVATE system.</p>

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Four Times

### Probable Fault — Potential Short in Air Bag Deployment Circuit

TEST STEP		RESULT	ACTION TO TAKE
4.0	DURING SYSTEM PROVE-OUT AIR BAG LAMP PROVIDES A FAULT INDICATION OF 4 FLASHES		
4.1	CHECK REAR SAFING SENSOR GROUND		
	<ul style="list-style-type: none"> <li>Deactivate system.</li> <li>Place jumper wire on dash panel sensor Circuit 613 (DBW) and to ground.</li> <li>Verify lamp. Does Air Bag lamp flash code 4?</li> </ul>	Yes	GO to 4.4.
		No	GO to 4.2.
4.2	CONTINUE REAR SAFING SENSOR CHECK		
	<ul style="list-style-type: none"> <li>Remove jumper wire.</li> <li>Loosen and tighten rear safing sensor attaching screws.</li> <li>Turn ignition switch to RUN.</li> <li>Does Air Bag lamp flash code 4?</li> </ul>	Yes	GO to 4.3.
		No	VERIFY air bag lamp.
4.3	CHECK SAFING SENSOR GROUND CIRCUIT		
	<ul style="list-style-type: none"> <li>Turn ignition switch to OFF.</li> <li>Disconnect rear safing sensor wiring connector.</li> <li>Attach ohmmeter to Circuit 613 (DBW) in sensor connector and to ground.</li> <li>Is resistance less than one ohm?</li> </ul>	Yes	INSPECT connector terminals and wires and SERVICE as required. REACTIVATE system. VERIFY Air Bag lamp.
		No	REPLACE rear safing sensor. REACTIVATE system. VERIFY Air Bag lamp.
4.4	CHECK 611 CIRCUIT IN CENTER FRONT SENSOR		
	<ul style="list-style-type: none"> <li>Remove jumper wire.</li> <li>Disconnect center front sensor.</li> <li>Verify lamp. Does lamp flash code 4?</li> </ul>	Yes	GO to 4.5.
		No	REPLACE center front sensor. RECONNECT system. VERIFY lamp. REACTIVATE system. VERIFY lamp.
4.5	CONTINUE CIRCUIT 611 CHECK		
	<ul style="list-style-type: none"> <li>Check resistance between Circuit 611 (Pin 15) and 612 (Pin 23) at the back of the diagnostic monitor connector.</li> <li>Is resistance less than one ohm?</li> </ul>	Yes	GO to 4.7.
		No	GO to 4.6.

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Four Times

### Probable Fault — Potential Short in Air Bag Deployment Circuit

TEST STEP		RESULT	ACTION TO TAKE
4.6	CHECK 611 IN REAR SAFING SENSOR		
<ul style="list-style-type: none"> <li>• Disconnect rear safing sensor.</li> <li>• Check resistance between Circuits 611 (W/O) and 612 (P/O).</li> <li>• Is resistance less than one ohm?</li> </ul>		Yes	TRACE Circuits 611 and 612 back to diagnostic monitor for open circuit and SERVICE (check connectors and terminals to confirm proper connections). If no open circuit exists, REPLACE diagnostic monitor. RECONNECT system. REACTIVATE system. VERIFY Air Bag lamp.
		No	REPLACE rear safing sensor. RECONNECT system. REACTIVATE system. VERIFY Air Bag lamp.
4.7	CHECK FOR REAR SAFING SENSOR SHORT OR FORWARD CRASH SENSOR INPUT SHORT		
<ul style="list-style-type: none"> <li>• Check voltage at back of diagnostic monitor connector Circuit 617 (Pin 17, PK/O) and to ground.</li> <li>• Is voltage less than one volt?</li> </ul>		Yes	GO to 4.8.
		No	A short to B + exists in the forward crash sensor input Circuits 615 (GY/W), 616 (PK/BK), 617 (PK/O), 619 (PK/W), or 621 (W/Y). DISCONNECT diagnostic monitor and CHECK for voltage on these circuits. If no short to B + exists, REPLACE diagnostic monitor. RECONNECT system. REACTIVATE system. VERIFY Air Bag lamp.

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Four Times

### Probable Fault — Potential Short in Air Bag Deployment Circuit

TEST STEP		RESULT	ACTION TO TAKE
4.8	CHECK CIRCUIT 623 (P/W)		
	<ul style="list-style-type: none"> <li>• Disconnect rear safing sensor.</li> <li>• With voltmeter, probe wiring connector Circuit 623 (P/W) to ground.</li> <li>• Is 623 at battery voltage?</li> </ul>	Yes	GO to 4.10.
		No	GO to 4.9.
4.9	CHECK 623 OPEN		
	<ul style="list-style-type: none"> <li>• With voltmeter, check wiring harness side of connector to diagnostic monitor, Circuit 623 (Pin 12, P/W).</li> <li>• Is 623 at battery voltage?</li> </ul>	Yes	SERVICE open in Circuit 623 (P/W) between diagnostic monitor and rear sensor. RECONNECT system. REACTIVATE system. VERIFY lamp.
		No	REPLACE diagnostic monitor.
4.10	CHECK CIRCUIT 623 SHORT TO BATTERY POSITIVE (B+)		
	<ul style="list-style-type: none"> <li>• Disconnect diagnostic monitor.</li> <li>• With voltmeter, check rear safing sensor wiring connector Circuit 623 (P/W) and to ground.</li> <li>• Is 623 still at battery voltage?</li> </ul>	Yes	Short to B+ exists in Circuit 623 between diagnostic monitor and rear safing sensor. TRACE circuit and SERVICE. If no short exists, REPLACE diagnostic monitor. RECONNECT system. REACTIVATE system. VERIFY Air Bag lamp.
		No	RECONNECT diagnostic monitor. GO to 4.11.
4.11	CHECK REAR SAFING SENSOR OR CIRCUIT 614		
	<ul style="list-style-type: none"> <li>• With diagnostic module reconnected, check rear safing sensor resistance between Circuits 623 (P/W) and 614 (BY/O).</li> <li>• Is resistance less than one ohm?</li> </ul>	Yes	GO to 4.12.
		No	REPLACE rear safing sensor. RECONNECT system. REACTIVATE system. VERIFY Air Bag lamp.

## DIAGNOSIS AND TESTING (Continued)

# **Fault Indication — Air Bag Lamp Flashes Four Times**

## **Probable Fault — Potential Short in Air Bag Deployment Circuit**

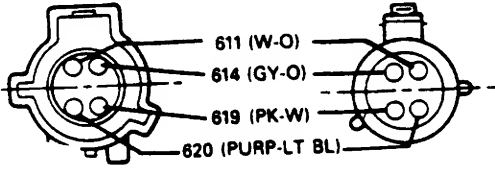
TEST STEP		RESULT	ACTION TO TAKE
4.12	CONTINUE REAR SAFING SENSOR CHECKS		
<ul style="list-style-type: none"> <li>• Check rear safing sensor resistance between Circuit 623 (P/W) and Circuits 611 (W/O), 612 (P/O), and 613 (DB/W).</li> <li>• Are all paths open circuits (off scale)?</li> </ul>		Yes	<p>▶ An open exists in 614 (GY/O) between the rear safing sensor and the diagnostic monitor Pins 8 or 11. FIND open and SERVICE. If no open exists, REPLACE diagnostic monitor. RECONNECT system. REACTIVATE system. VERIFY Air Bag lamp.</p>
		No	<p>▶ REPLACE rear safing sensor. RECONNECT system. REACTIVATE system. VERIFY Air Bag lamp.</p>



## DIAGNOSIS AND TESTING (Continued)

# Fault Indication — Air Bag Lamp Flashes Five Times

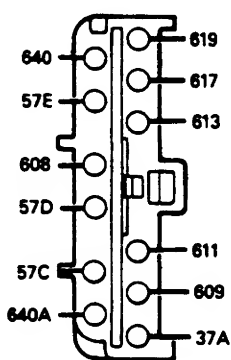
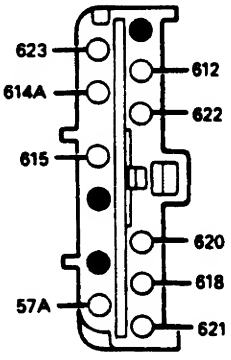
## Probable Fault — Forward Crash Sensor Or Ignition Circuit Shorted to Ground

TEST STEP		RESULT	ACTION TO TAKE																
DURING SYSTEM PROVE-OUT AIR BAG LAMP PROVIDES A FAULT INDICATION OF 5 FLASHES																			
5.0	DURING SYSTEM PROVE-OUT AIR BAG LAMP PROVIDES A FAULT INDICATION OF 5 FLASHES																		
5.1	CHECK AIR BAGS																		
	<ul style="list-style-type: none"> <li>• Turn ignition switch to OFF.</li> <li>• Deactivate system.</li> <li>• Verify lamp. Does Air Bag lamp flash 5 times?</li> </ul>	Yes  No	GO to 5.2.  DISCONNECT battery ground and backup power supply. REPLACE driver air bag. RECONNECT and REACTIVATE system. VERIFY Air Bag lamp. If code 10 is present, REPLACE diagnostic monitor.																
5.2	VERIFY LAMP WITH ALL THREE FRONT SENSORS DISCONNECTED																		
	<ul style="list-style-type: none"> <li>• Deactivate system.</li> <li>• Disconnect all front sensors (Left, Right and Center).</li> <li>• Verify Air Bag lamp.</li> </ul>	Air Bag lamp flashes fault code 5 Air Bag lamp flashes fault code 10 Air Bag lamp does not flash either fault 5 or 10	GO to 5.3. GO to 5.4. REPLACE diagnostic monitor. RECONNECT system. VERIFY Air Bag lamp. REACTIVATE system.																
5.3	CHECK RESISTANCE OF THE FRONT SENSORS																		
	<ul style="list-style-type: none"> <li>• Check for intermittent short in Circuits 617, 619.</li> <li>• Perform all three of the following tests.</li> <li>• Attach ohmmeter to ground and to appropriate pin on each front sensor connector.</li> </ul>	Yes  Resistance is NOT between 1000-1300 ohms for one or all sensors	REPLACE diagnostic monitor. RECONNECT system. VERIFY Air Bag lamp. REACTIVATE system.  REPLACE faulty sensor(s). VERIFY Air Bag lamp. If lamp flashes fault code 10, INSTALL a new diagnostic monitor. REACTIVATE system. VERIFY Air Bag lamp.																
	<table border="1"> <thead> <tr> <th>Sensor</th><th>Circuit</th><th>Pin</th><th>Wire Color</th></tr> </thead> <tbody> <tr> <td>Right</td><td>617</td><td>17</td><td>PK/O</td></tr> <tr> <td>Left</td><td>621</td><td>19</td><td>PK/O</td></tr> <tr> <td>Center</td><td>619</td><td>18</td><td>PK/W</td></tr> </tbody> </table>	Sensor	Circuit	Pin	Wire Color	Right	617	17	PK/O	Left	621	19	PK/O	Center	619	18	PK/W		
Sensor	Circuit	Pin	Wire Color																
Right	617	17	PK/O																
Left	621	19	PK/O																
Center	619	18	PK/W																
	<ul style="list-style-type: none"> <li>• Is resistance between 1000-1300 ohms for each sensor?</li> </ul>																		
	<p>FRONT CENTER SENSOR</p> 																		

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Five Times

### Probable Fault — Shorted Forward Crash Sensor Deployment Circuit

TEST STEP			RESULT	ACTION TO TAKE
5.4	CHECK RESISTANCE IN CIRCUITS 617 (PK/O), 619 (PK/W) AND 621 (W/Y)		Yes	TRACE appropriate circuit(s) to find contact to ground and SERVICE. RECONNECT system. VERIFY Air Bag lamp. If lamp flashes fault code 10, INSTALL a new diagnostic monitor. REACTIVATE system. VERIFY Air Bag lamp.
<ul style="list-style-type: none"><li>Disconnect diagnostic monitor.</li><li>Perform all three of the following tests.</li><li>Attach ohmmeter to ground and to appropriate pin on the diagnostic monitor wiring connector.</li></ul>				
Pin No.	Circuit	Wire Color		
17	617	PK/O		
18	619	PK/W		
19	621	W/Y		
<ul style="list-style-type: none"><li>Is resistance less than 1 ohm for any test?</li></ul> <div><p>DIAGNOSTIC MONITOR CONNECTOR — GRAY</p><p>DIAGNOSTIC MONITOR CONNECTOR — BLACK</p></div>			Resistance is 1 ohm or greater	GO to 5.5.
5.5	CHECK CIRCUIT 615 (GY/W) BETWEEN MONITOR AND DRIVER AIR BAG			
<ul style="list-style-type: none"><li>Remove jumper in wiring connector to driver air bag. Leave open.</li><li>Fault code should change to Code 4 or Code 6.</li></ul>			Code 6	GO to 5.6.
			Code 4	GO to 5.7.

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Five Times

### Probable Fault — Forward Crash Sensor or Igniter Circuit Shorted to Ground

TEST STEP		RESULT	ACTION TO TAKE
<b>5.6</b>	<b>CHECK CLOCKSPrING</b>		
<ul style="list-style-type: none"> <li>• Short to ground in Circuit 615 (GY/W) between driver air bag and diagnostic monitor.</li> <li>• Disconnect clockspring connector to 14401 at base of column.</li> <li>• Jumper wiring connector Circuits 614 (GY/O) and 615 (GY/W).</li> <li>• Verify lamp. Does lamp flash code 6?</li> </ul>		Yes	TRACE and SERVICE Circuit 615 short to ground between clockspring and diagnostic monitor. If code 10 is present, or no short exists, REPLACE diagnostic monitor.
		No lamp goes out	REPLACE clockspring. RECONNECT system. If code 10 is present, REPLACE monitor. VERIFY Air Bag lamp.
<b>5.7</b>	<b>SHORT IN CIRCUIT 614 (GY/O) OR 623 (P/W) CHECK CIRCUIT 614 (GY/O)</b>		
<ul style="list-style-type: none"> <li>• Disconnect rear safing sensor.</li> <li>• With an ohmmeter, check Circuit 614 (GY/O) Pin 11 and ground.</li> <li>• Is resistance less than 1 ohm?</li> </ul>		Yes	A short to ground exists in Circuit 614 (GY/O) between safing sensors, air bag and Pin 11 of diagnostic monitor. TRACE short to ground. REPAIR as required. RECONNECT and REACTIVATE system. VERIFY lamp. If no short is found, or code 10 is present, replace diagnostic module.
		No	GO to 5.8.
<b>5.8</b>	<b>CHECK CIRCUIT 623 (P/W) PIN 12</b>		
<ul style="list-style-type: none"> <li>• With an ohmmeter check Circuit 623 (P/W) Pin 12 and ground.</li> <li>• Is resistance less than 1 ohm?</li> </ul>		Yes	TRACE short to ground in Circuit 623 (P/W). REPAIR as required. RECONNECT and REACTIVATE system. VERIFY lamp. If code 10 exists, REPLACE monitor.
		No	GO to 5.9.

## DIAGNOSIS AND TESTING (Continued)

**Fault Indication — Air Bag Lamp Flashes Five Times**  
**Probable Fault — Forward Crash Sensor or Igniter Circuit Shorted to Ground**

TEST STEP		RESULT	ACTION TO TAKE
5.9	CHECK REAR SAFING SENSOR		
<ul style="list-style-type: none"><li>• With an ohmmeter, check Circuit 623 (P/W) in sensor connector and ground. (With sensor attached to vehicle.)</li><li>• Is resistance less than 1 ohm?</li></ul>		Yes	REPLACE rear safing sensor. If code 10 exists, REPLACE diagnostic monitor. RECONNECT and REACTIVATE system. VERIFY Air Bag lamp.
		No	REPLACE diagnostic monitor. RECONNECT and REACTIVATE system. VERIFY Air Bag lamp.

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Six Times

### Probable Fault — Driver Air Bag Circuit Inoperative

TEST STEP		RESULT	ACTION TO TAKE
<b>6.0</b>	DURING SYSTEM PROVE-OUT AIR BAG LAMP PROVIDES A FAULT CODE OF 6 FLASHES		
<b>6.1</b>	CHECK DRIVER AIR BAG		
	<ul style="list-style-type: none"> <li>Deactivate air bag system.</li> <li>Verify Air Bag lamp while slowly rotating the steering wheel assembly.</li> <li>Does the Air Bag lamp still flash fault code 6 and/or flash intermittently?</li> </ul>	Yes  No	GO to 6.2.  DISCONNECT battery ground cable and power supply. REMOVE jumper wire. INSTALL a new driver air bag. RECONNECT system. VERIFY Air Bag lamp.
<b>6.2</b>	CHECK CLOCKSPRING		
	<ul style="list-style-type: none"> <li>Disconnect Air Bag clockspring wiring connector at base of column.</li> <li>Place a jumper wire across Circuits 614 (GY/O) and 615 (PK) of the wiring connector.</li> <li>Verify Air Bag lamp.</li> <li>Does the Air Bag lamp still flash fault code 6?</li> </ul>	Yes  No	GO to 6.3.  DISCONNECT battery ground cable and power supply. REMOVE jumper wire from air bag clockspring wiring connector. INSTALL new clockspring. RECONNECT system. VERIFY Air Bag lamp. REACTIVATE system.
<b>6.3</b>	CHECK AIR BAG DIAGNOSTIC MONITOR CONNECTORS		
	<ul style="list-style-type: none"> <li>Remove jumper wire from air bag clockspring wiring connector.</li> <li>Disconnect diagnostic monitor connectors.</li> <li>Before continuing, visually inspect connector to ensure that Pin 11, Circuit 614 (GY/O) and Pin 10, Circuit 615 (PK) are touching.</li> <li>Attach ohmmeter to Pin 11, Circuit 614 (GY/O) on the diagnostic monitor wiring connector and to Circuit 614 (PK) clockspring wiring connector.</li> <li>Is resistance less than 1 ohm?</li> </ul>	Yes  No	GO to 6.4.  TRACE Circuit 614 (GY/O) from clockspring wiring connector to diagnostic monitor connector to locate and SERVICE open circuit. RECONNECT system. REACTIVATE air bag system. VERIFY Air Bag lamp.

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Six Times

### Probable Fault — Driver Air Bag Circuit Inoperative

TEST STEP		RESULT	ACTION TO TAKE
6.4	CHECK RESISTANCE IN CIRCUITS		
<ul style="list-style-type: none"> <li>• Attach ohmmeter to Pin 10. Circuit 615 (GY/N) on diagnostic monitor wiring connector and to Circuit 615 (PK) on the clockspring connector.</li> <li>• Is resistance less than 1 ohm?</li> </ul>		Yes	INSPECT connector for properly seated pins. If okay, INSTALL a new diagnostic monitor. RECONNECT system. REACTIVATE system. VERIFY Air Bag lamp.
		No	TRACE Circuit 615 (GY/W) from clockspring connector to diagnostic monitor assembly to find open and SERVICE. RECONNECT system. REACTIVATE system. VERIFY Air Bag lamp.

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Seven Times

### Probable Fault — Passenger Air Bag Circuit Inoperative

TEST STEP		RESULT	ACTION TO TAKE
7.0	DURING SYSTEM PROVE OUT AIR BAG LAMP PROVIDES A FAULT INDICATION OF 7 FLASHES.		
7.1	VERIFY AIR BAG LAMP		
	<ul style="list-style-type: none"> <li>Deactivate passenger air bag.</li> <li>Verify Air Bag lamp.</li> </ul>	Air Bag lamp still flashes fault code 7 Air Bag lamp does not flash fault code 7	GO to 7.2.  DISCONNECT battery ground cable and power supply. REMOVE jumper wire used in deactivation of passenger air bag. REPLACE passenger air bag. RECONNECT system. REACTIVATE system. VERIFY Air Bag lamp.
7.2	CHECK DIAGNOSTIC MONITOR CONNECTOR		
	<ul style="list-style-type: none"> <li>Deactivate driver air bag.</li> <li>Remove jumper wire from passenger air bag wiring connector.</li> <li>Disconnect diagnostic monitor.</li> <li>Visually inspect the monitor wiring connector to be sure Pin 8 Circuit 614 (GY/O) and Pin 9 Circuit 616 (PK/BK) are touching.</li> </ul>	Pins are not touching    Pins are touching as required	SERVICE or REPLACE connector as required. RECONNECT system. REACTIVATE Air Bag system (passenger and driver). VERIFY Air Bag lamp.   GO to 7.3.
7.3	CHECK RESISTANCE IN CIRCUIT 614 (GY/O)		
	<ul style="list-style-type: none"> <li>Using an ohmmeter, attach a lead to Pin 8 Circuit 614 (GY/O) on the monitor wiring connector and the other lead to Circuit 614 (GY/O) on the passenger air bag wiring connector to find the resistance.</li> </ul>	Resistance is less than one ohm Resistance is one ohm or greater	GO to 7.4.  TRACE Circuit 614 (GY/O) from passenger air bag wiring connector to LOCATE and SERVICE open circuit. RECONNECT system. REACTIVATE air bag system (passenger and driver). VERIFY Air Bag lamp.

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Seven Times

### Probable Fault — Passenger Air Bag Circuit Inoperative

TEST STEP		RESULT	ACTION TO TAKE
7.4	CHECK RESISTANCE IN CIRCUIT 616 (PK/BK)		
<ul style="list-style-type: none"> <li>Using an ohmmeter, attach a lead to Pin 9 Circuit 614 (BY/O) on the monitor wiring connector and the other lead to Circuit 616 (PK/BK) on the Passenger Air Bag wiring connector to find resistance.</li> </ul>		Resistance is less than one ohm	REPLACE diagnostic monitor. RECONNECT system. REACTIVATE Air Bag system (Passenger and Driver). VERIFY Air Bag lamp.
		Resistance is one ohm or greater	TRACE Circuit 616 (PK/BK) from Passenger Air Bag wiring connector to monitor wiring connector to LOCATE and SERVICE open circuit. RECONNECT system. REACTIVATE Air Bag system (Passenger and Driver). VERIFY Air Bag lamp.

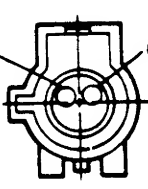
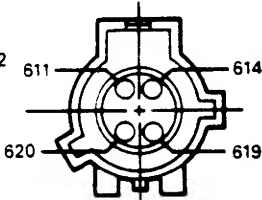
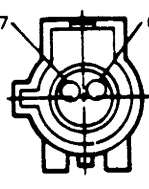
CR6187-A



## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Eight Times

### Probable Fault — Forward Crash Sensor Improperly Attached or Ground

TEST STEP		RESULT	ACTION TO TAKE												
8.0	DURING SYSTEM PROVE-OUT AIR BAG LAMP PROVIDES A FAULT INDICATION OF 8 FLASHES														
8.1	INSPECT FRONT SENSORS														
<ul style="list-style-type: none"><li>• Visually inspect each front sensor to ensure they are attached (properly grounded) to the vehicle.</li><li>• Are all sensors properly attached to vehicle?</li></ul>		Yes	GO to 8.2.												
		No	ATTACH sensor(s) properly. VERIFY Air Bag lamp.												
8.2	INSPECT EACH SENSOR'S WIRING CONNECTORS														
<ul style="list-style-type: none"><li>• Visually check each front sensor connector for proper connection to the vehicle wiring.</li><li>• Are all sensors properly connected?</li></ul>		Yes	GO to 8.3.												
		No	CONNECT sensor(s) properly. VERIFY Air Bag lamp.												
8.3	CHECK FOR RESISTANCE IN FRONT SENSORS														
<ul style="list-style-type: none"><li>• Disconnect battery ground and power supply.</li><li>• Disconnect all front sensors.</li><li>• Perform the following tests.</li><li>• Attach an ohmmeter to ground and to appropriate pin on each front sensor connector.</li></ul>		Yes	GO to 8.4.												
		No	REPLACE sensor(s). VERIFY Air Bag lamp.												
<table><tr><th>Sensor</th><th>Circuit</th><th>Wire Color</th></tr><tr><td>Right</td><td>618</td><td>P/LG</td></tr><tr><td>Left</td><td>622</td><td>T/BK</td></tr><tr><td>Center</td><td>620</td><td>P/LB</td></tr></table>		Sensor	Circuit	Wire Color	Right	618	P/LG	Left	622	T/BK	Center	620	P/LB		
Sensor	Circuit	Wire Color													
Right	618	P/LG													
Left	622	T/BK													
Center	620	P/LB													
<ul style="list-style-type: none"><li>• Is resistance less than 1 ohm for each test?</li></ul>															
<div><div><p>LH FORWARD SENSOR</p></div><div><p>CENTER FORWARD SENSOR</p></div><div><p>RH FORWARD SENSOR</p></div></div>															

CR6

## DIAGNOSIS AND TESTING (Continued)

**Fault Indication — Air Bag Lamp Flashes Eight Times**  
**Probable Fault — Forward Crash Sensor Improperly Attached or Grounded**

TEST STEP			RESULT	ACTION TO TAKE
8.4	CHECK FOR RESISTANCE IN CIRCUITS 618 (P/LG), 620 (P/LB) AND 622 (T/BK)		Yes	INSPECT terminals in diagnostic monitor connector and SERVICE as required. If terminals and connections are OK, INSTALL a new diagnostic monitor. RECONNECT system. VERIFY Air Bag lamp.
<ul style="list-style-type: none"><li>Reconnect all front sensors.</li><li>Perform all three of the following tests.</li><li>Attach ohmmeter to ground and to appropriate pin on diagnostic monitor connector. Probe back of connector.</li></ul>				
Pin No.	Circuit	Wire Color	No	TRACE appropriate circuit(s) to find open(s) and SERVICE. RECONNECT system. VERIFY Air Bag lamp.
20	618	P/LG		
21	620	P/LB		
22	622	T/BK		
<ul style="list-style-type: none"><li>Is the resistance less than 1 ohm for each test?</li></ul>				

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Nine Times

### Probable Fault — Open Forward Crash Sensor Deployment Circuit

TEST STEP			RESULT	ACTION TO TAKE												
9.0	DURING SYSTEM PROVE-OUT AIR BAG LAMP PROVIDES A FAULT INDICATION OF 9 FLASHES															
9.1	INSPECT EACH FRONT SENSOR CONNECTOR TO VEHICLE WIRING															
<ul style="list-style-type: none"><li>Visually inspect each front sensor, left, right, and center for a proper connection to the vehicle wiring.</li><li>Are all sensors properly connected?</li></ul>			Yes	GO to 9.2.												
			No	CONNECT sensor(s) properly. VERIFY air bag lamp.												
9.2	CHECK RESISTANCE OF EACH FRONT SENSOR															
<ul style="list-style-type: none"><li>Disconnect battery ground cable and power supply.</li><li>Disconnect all front sensors.</li><li>Perform all three of the following tests on all three of the front sensors.</li><li>Attach ohmmeter to ground and to appropriate pin on front sensor connector.</li></ul>			Yes	GO to 9.3.												
			No	REPLACE those sensors that did not have a resistance between 1000-1300 ohms. RECONNECT system. VERIFY air bag lamp.												
<table><tr><td>Sensor</td><td>Circuit</td><td>Wire Color</td></tr><tr><td>Right</td><td>617</td><td>PK/O</td></tr><tr><td>Center</td><td>619</td><td>PK/W</td></tr><tr><td>Left</td><td>621</td><td>W/Y</td></tr></table>			Sensor	Circuit	Wire Color	Right	617	PK/O	Center	619	PK/W	Left	621	W/Y		
Sensor	Circuit	Wire Color														
Right	617	PK/O														
Center	619	PK/W														
Left	621	W/Y														
<ul style="list-style-type: none"><li>Is resistance of each sensor between 1000-1300 ohms for each test?</li></ul>																
9.3	CHECK RESISTANCE OF CIRCUITS 617 (PK/O), 619 (PK/W) AND 621 (W/Y)															
<ul style="list-style-type: none"><li>Reconnect front sensors.</li><li>Deactivate system.</li><li>Perform all three of the following tests.</li><li>Disconnect diagnostic monitor and attach ohmmeter to ground and to appropriate pin on diagnostic monitor wiring connector.</li></ul>			Yes	REPLACE diagnostic monitor. RECONNECT system. VERIFY air bag lamp. REACTIVATE system.												
			No	TRACE appropriate circuits to locate opens and SERVICE. RECONNECT system. VERIFY air bag lamp. REACTIVATE system.												
<table><tr><td>Pin No.</td><td>Circuit</td><td>Wire Color</td></tr><tr><td>17</td><td>617</td><td>PK/O</td></tr><tr><td>18</td><td>619</td><td>PK/W</td></tr><tr><td>19</td><td>621</td><td>W/Y</td></tr></table>			Pin No.	Circuit	Wire Color	17	617	PK/O	18	619	PK/W	19	621	W/Y		
Pin No.	Circuit	Wire Color														
17	617	PK/O														
18	619	PK/W														
19	621	W/Y														
<ul style="list-style-type: none"><li>Is the resistance between 1000-1300 ohms for each test?</li></ul>																

## DIAGNOSIS AND TESTING (Continued)

**Fault Indication—Air Bag Lamp Flashes 10 Times****Probable Fault:**

- Firing circuit disarm device blown due to deployment circuit shorted to ground.

NOTE: A thermal fuse is built into the diagnostic monitor that opens the battery and power supply circuit to the air bag should a short occur in the air bag deployment circuit without a safing sensor being closed. This prevents unwanted air bag deployment due to damaged vehicle wiring.

The Code 10 is a result of a short to ground, as described in the diagnosis for a Code 5. Code 10 is normally found after repair of a Code 5 condition. If the Code 5 is intermittent, just the Code 10 may be showing. Always look for shorts before repairing the Code 10, (replacing the diagnostic monitor. **Since the thermal fuse is built into the diagnostic monitor, the monitor must be replaced to repair a Code 10. Refer to Code 5 diagnosis.**

**Ford Crown Victoria/Mercury Grand Marquis**

NOTE: The following diagnosis and testing procedures cover Ford Crown Victoria and Mercury Marquis vehicles with driver air bag only. For Diagnosis of Lincoln Town Car, refer to Diagnosis and Testing, Lincoln Town Car in this Section.

**FAULT CODE PRIORITIES**

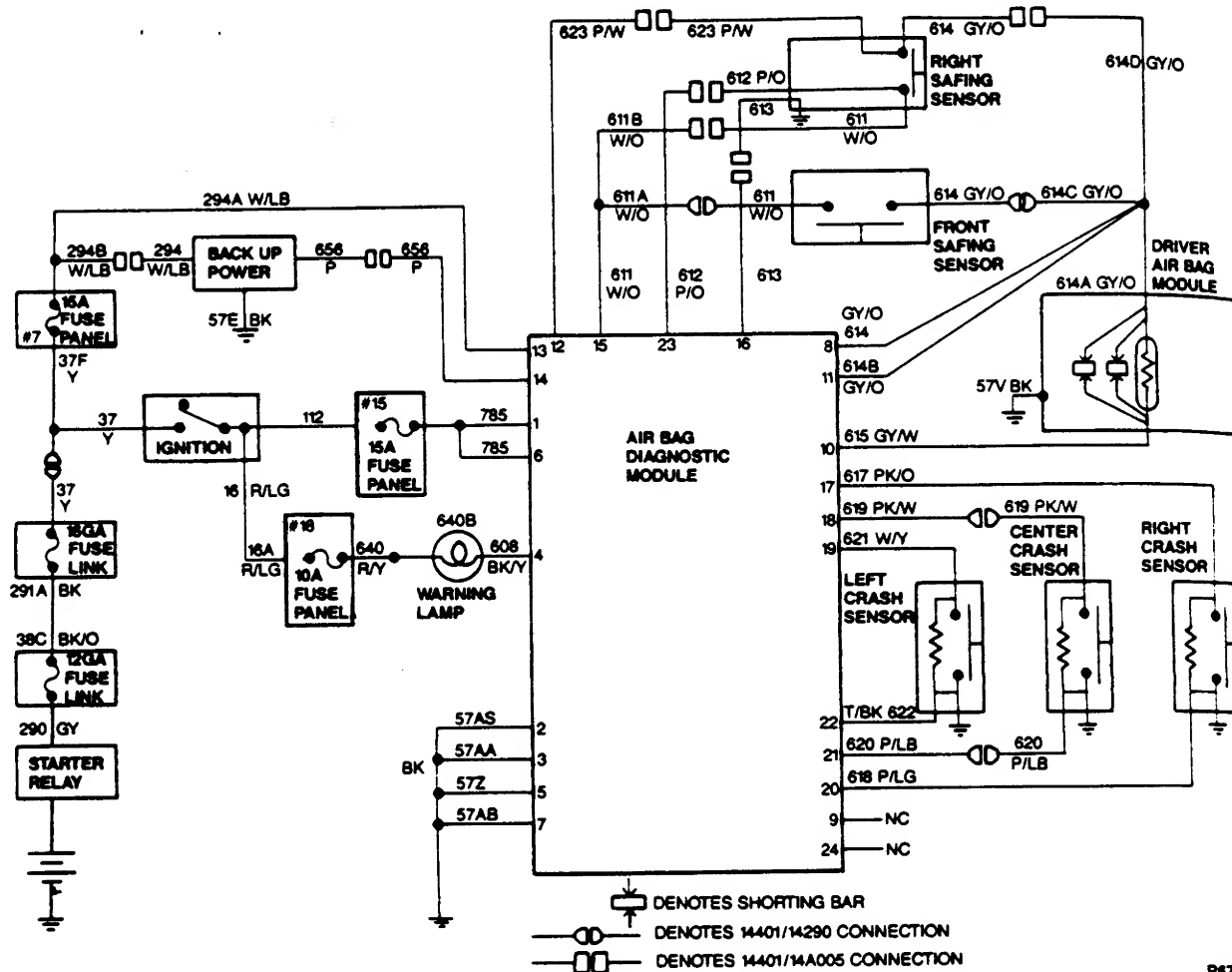
Number of Flashes	Probable Fault
No Lamp	Inoperative air bag indicator lamp circuit
Continuous Lamp	Faulty monitor or disconnected or loose monitors
3	Loss of air bag deployment circuit power. Backup power supply disconnected
5	Shorted forward impact sensor deployment circuit or potential short in air bag deployment circuit
10	Faulty firing circuit disarm device
4	Potential short in air bag deployment circuit. Must use Diagnosis Guide No. 4 for diagnosis
6	Driver air bag circuit inoperative
7	Passenger air bag circuit inoperative
8	Forward impact sensor improperly attached or grounded
9	Open forward impact sensor deployment circuit
2	All forward impact sensors disconnect

CR6191-B

## DIAGNOSIS AND TESTING (Continued)

## Air Bag System Schematic

Ford Crown Victoria/Mercury Grand Marquis

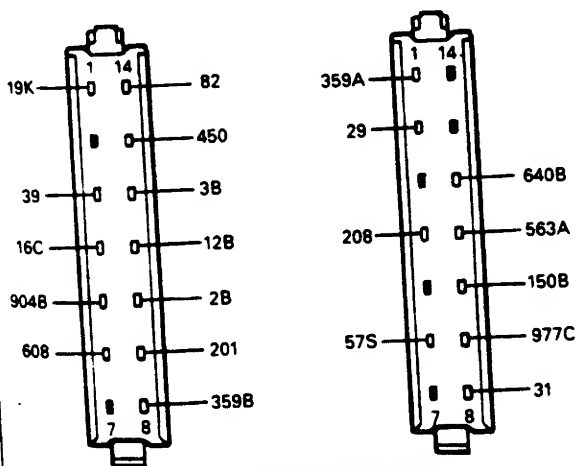


R6751-A

## DIAGNOSIS AND TESTING (Continued)

# Fault Indication — Air Bag Lamp Does Not Light

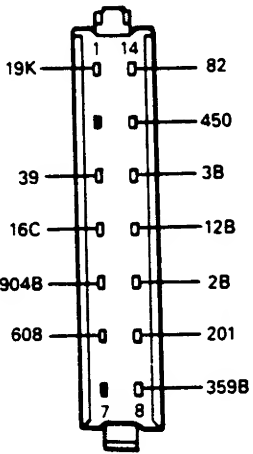
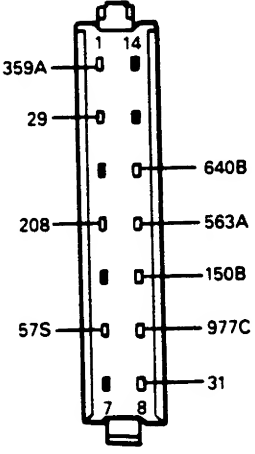
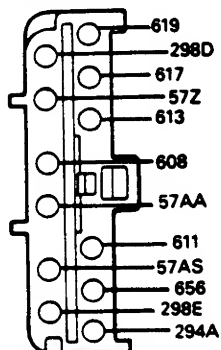
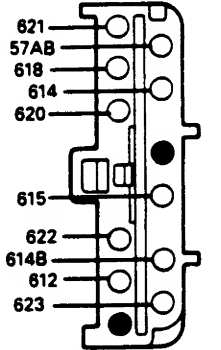
## Probable Fault — Inoperative Air Bag Lamp Circuit

TEST STEP		RESULT	ACTION TO TAKE
A0	DURING SYSTEM PROVE-OUT AIR BAG INDICATOR LAMP DID NOT LIGHT		
A1	CHECK WARNING LAMPS		
	<ul style="list-style-type: none"> <li>• Turn ignition switch from OFF to RUN.</li> <li>• Warning lamps should light.</li> <li>• Do engine and safety belt warning lamps light?</li> </ul>	Yes	GO to A6.
		No	GO to A2.
A2	CHECK FUSE		
	<ul style="list-style-type: none"> <li>• Turn ignition switch to OFF.</li> <li>• Check warning lamps fuse.</li> <li>• Is fuse blown?</li> </ul>	Yes	GO to A3.
		No	GO to A4.
A3	REPLACE FUSE		
	<ul style="list-style-type: none"> <li>• Install new fuse into fuse panel.</li> <li>• Turn ignition switch to RUN.</li> <li>• Did fuse blow again?</li> </ul>	No	VERIFY Air Bag warning lamps.
	 <p>IP CLUSTER CONNECTORS</p>	Yes	TURN ignition switch to OFF. DEACTIVATE air bag system. TRACE Circuit 640 (R/Y) from cluster connector to fuse panel, to find short to ground and SERVICE. REACTIVATE system and VERIFY warning lamps.
A4	RECHECK WARNING LAMPS		
	<ul style="list-style-type: none"> <li>• Remove cluster connector, then reconnect connector.</li> <li>• Turn ignition switch from OFF to RUN.</li> <li>• Verify warning lamps.</li> <li>• Do warning lamps light?</li> </ul>	No	GO to A5.
		Yes	VERIFY Engine, Safety Belt and Air Bag warning lamps.

## DIAGNOSIS AND TESTING (Continued)

# Fault Indication — Air Bag Lamp Does Not Light

## Probable Fault — Inoperative Air Bag Lamp Circuit

TEST STEP	RESULT	ACTION TO TAKE
<p><b>A5</b> CHECK CIRCUIT 640 (R/Y) FOR OPEN CIRCUIT</p> <ul style="list-style-type: none"> <li>• Turn ignition switch to OFF.</li> <li>• Deactivate air bag system.</li> <li>• Remove warning lamps fuse.</li> <li>• Attach ohmmeter to Circuit 640 (R/Y) at fuse panel and cluster wiring connector.</li> <li>• Is resistance less than 1 ohm?</li> </ul> <div style="display: flex; justify-content: space-around;">   </div>	<p>Yes</p> <p>No</p>	<p>REPLACE bulbs and/or cluster printed circuit as required.</p> <p>REACTIVATE system and VERIFY warning lamps.</p> <p>TRACE Circuit 640 (R/Y) from Cluster connector to fuse panel to find open in circuit, and REPAIR.</p> <p>REACTIVATE air bag system and VERIFY warning lamps.</p>
<p><b>A6</b> CHECK THAT MONITOR CONNECTOR IS PROPERLY CONNECTED</p> <ul style="list-style-type: none"> <li>• Are the diagnostic monitor connectors properly connected?</li> </ul> <div style="display: flex; justify-content: space-around;">   </div> <p style="text-align: center;">DIAGNOSTIC MONITOR CONNECTOR (GRAY)      DIAGNOSTIC MONITOR CONNECTOR (BLACK)</p>	<p>Yes</p> <p>No</p>	<p>GO to A7.</p> <p>Properly connect diagnostic monitor connectors. VERIFY Air Bag lamp. If Air Bag lamp does not light GO to A8.</p>

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Does Not Light

### Probable Fault — Inoperative Air Bag Lamp Circuit

TEST STEP		RESULT	ACTION TO TAKE
<b>A7</b>	<b>CHECK LAMP WITH MONITOR CONNECTOR DISCONNECTED</b>		
<ul style="list-style-type: none"> <li>• Turn ignition switch to OFF.</li> <li>• Disconnect diagnostic monitor wiring from monitor assembly.</li> <li>• Turn ignition switch to RUN.</li> <li>• Is the air bag lamp continuously on?</li> </ul>		No	GO to A8.
		Yes	GO to A9.
<b>A8</b>	<b>CHECK MONITOR CONNECTOR</b>		
<ul style="list-style-type: none"> <li>• Turn ignition switch to OFF.</li> <li>• Deactivate air bag system.</li> <li>• Visually inspect the monitor connector to be sure Pin 5 (Circuit 57, BK) and Pin 4 (Circuit 608, BK/Y) are touching each other.</li> <li>• Turn ignition switch to RUN.</li> <li>• Does air bag lamp flash continuously?</li> </ul>		Yes	GO to A9.
		No	GO to A10.



## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Does Not Light

### Probable Fault — Inoperative Air Bag Lamp Circuit

TEST STEP		RESULT	ACTION TO TAKE
<b>A9</b>	CHECK CIRCUIT 298 (P/O)		
<ul style="list-style-type: none"> <li>• Turn ignition switch to OFF.</li> <li>• Deactivate air bag system.</li> <li>• Attach voltmeter to Pin 6 (Circuit 785) on monitor wiring connector and to ground.</li> <li>• Turn ignition switch to RUN.</li> <li>• Is voltage greater than 10 volts?</li> </ul>		Yes	TURN ignition switch to OFF. REPLACE diagnostic monitor.  REACTIVATE air bag system.  TURN ignition switch to RUN. VERIFY Air Bag warning lamp.
		No	TURN ignition switch to OFF. CHECK fuse No. 15 (15 amp). REPLACE fuse if blown and/or trace Circuit 785 from monitor wiring connector Pin 6 to fuse panel to find open and/or short to ground, and REPAIR.  REACTIVATE air bag system. Turn ignition to RUN. VERIFY Air Bag warning lamp.
<b>A10</b>	JUMP CIRCUIT 57 (BK)		
<ul style="list-style-type: none"> <li>• Reconnect diagnostic monitor assembly connector.</li> <li>• Attach a jumper wire to Pin 5 (Circuit 57, BK) through back of monitor wiring connector and to ground.</li> <li>• Does Air Bag lamp light?</li> </ul>		Yes	TURN ignition to OFF. REMOVE jumper wire. SERVICE ground circuit. REACTIVATE air bag system. TURN ignition switch to RUN. VERIFY Air Bag warning lamp.
		No	GO to A11.

## DIAGNOSIS AND TESTING (Continued)

# Fault Indication — Air Bag Lamp Does Not Light

## Probable Fault — Inoperative Air Bag Lamp Circuit

TEST STEP		RESULT	ACTION TO TAKE
A11	INSPECT CLUSTER PRINTED CIRCUIT	Yes	REPLACE printed circuit, connector and/or bulb as required. ACTIVATE air bag system. TURN ignition switch to RUN. VERIFY Air Bag warning lamp.
	<ul style="list-style-type: none"> <li>• Turn ignition switch to OFF.</li> <li>• Remove jumper wire.</li> <li>• Disconnect cluster connector.</li> <li>• Visually inspect cluster printed circuit and Air Bag lamp.</li> <li>• Does printed circuit or connector have any defects and/or is Air Bag lamp burnt out?</li> </ul> <div> </div> <p>AIR BAG BAG MONITOR CONNECTORS</p>	No	TRACE Circuit 608 (BK/Y) from cluster to find open and SERVICE. REACTIVATE air bag system. TURN ignition to RUN. VERIFY Air Bag warning lamp.

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Stays On

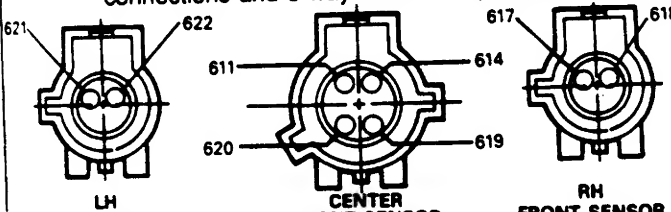
### Probable Fault — Diagnostic Module Fault

TEST STEP		RESULT	ACTION TO TAKE
<b>B0</b>	DURING SYSTEM PROVE-OUT AIR BAG LAMP STAYS ON		
<b>B1</b>	CHECK DIAGNOSTIC MONITOR		
<ul style="list-style-type: none"> <li>• Visually inspect diagnostic monitor for proper connection to monitor wiring connector.</li> <li>• Is diagnostic monitor properly connected?</li> </ul>		Yes	GO to B2.
		No	SERVICE connector. VERIFY Air Bag lamp.
<b>B2</b>	CHECKING DIAGNOSTIC MONITOR — CONTINUED		
<ul style="list-style-type: none"> <li>• Disconnect diagnostic monitor.</li> <li>• Insert toothpick or other non-conducting object into wiring connector between Pins 4 and 5 to depress shorting bar between the two terminals.</li> <li>• Verify Air Bag lamp.</li> <li>• Is Air Bag lamp still on?</li> </ul>		No	REPLACE diagnostic monitor. RECONNECT system. VERIFY Air Bag lamp.
		Yes	TRACE Circuit 608 (BK/Y) from diagnostic monitor to find contact to ground and SERVICE.  RECONNECT system. VERIFY Air Bag lamp.

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Two Times

### Probable Fault — All Forward Crash Sensors Disconnected

TEST STEP		RESULT	ACTION TO TAKE
2.0	DURING SYSTEM PROVE-OUT AIR BAG LAMP PROVIDES A FAULT INDICATOR OF 2 FLASHES		
2.1	INSPECT FRONT SENSORS		
	<ul style="list-style-type: none"> <li>Visually inspect all three front sensor assembly connections and 8-way connector (on fuse panel).</li> </ul>  <p style="text-align: center;">LH FRONT SENSOR      CENTER FRONT SENSOR      RH FRONT SENSOR</p>	<p>All three sensors are properly connected</p> <p>One or all sensors are not properly connected</p>	<p>GO to 2.2.</p> <p>Properly connect the sensor(s) or 8-way connector. VERIFY Air Bag lamp.</p>
2.2	INSPECT WIRING CONNECTORS		
	<ul style="list-style-type: none"> <li>Deactivate air bag system.</li> <li>Disconnect diagnostic monitor.</li> <li>Visually inspect monitor wiring connector for proper connection at Pin numbers: 17 (617, PK/O) 18 (619, PK/W) 20 (618, P/LG) 21 (620, P/LB) 22 (622, T/BK) 19 (621, W/Y)</li> <li>Are all connections made?</li> </ul>	<p>Yes</p> <p>No</p>	<p>GO to 2.3.</p> <p>SERVICE connections. RECONNECT system. VERIFY Air Bag lamp. REACTIVATE system.</p>

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Two Times

### Probable Fault — All Forward Crash Sensors Disconnected

TEST STEP				RESULT	ACTION TO TAKE
<b>2.3 CHECK RESISTANCE IN DIAGNOSTIC MONITOR CIRCUITS</b>					
<ul style="list-style-type: none"> <li>Perform all of the following circuit tests with monitor disconnected.</li> <li>Attach the lead of the ohmmeter to each set of pins indicated on the diagnostic monitor wiring connector to check the resistance between them.</li> </ul>				Yes	REPLACE diagnostic monitor. VERIFY Air Bag lamp. REACTIVATE system.
				Resistance is NOT between 1000-1300 ohms on one or more of the tests.	TRACE appropriate circuit(s) and find open and SERVICE. CONNECT diagnostic monitor. VERIFY Air Bag lamp. REACTIVATE system.
Pin A	Pin B	Corresponding Sensor	Circuits		
17	20	Right	617 (PK/O)/ 618 (P/LG)		
19	22	Left	621 (W/Y)/ 622 (T/BK)		
18	21	Center	619 (PK/W)/ 620 (P/LB)		
<ul style="list-style-type: none"> <li>Is the resistance between 1000-1300 ohms for each test?</li> </ul>					



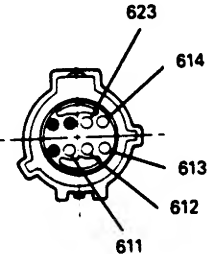
## DIAGNOSIS AND TESTING (Continued)

**Fault Indication — Air Bag Lamp Flashes Three Times**  
**Probable Fault — Loss of Air Bag Circuit Deployment Power**  
**and/or Backup Power Supply Disconnected**

TEST STEP		RESULT	ACTION TO TAKE
3.4	CHECK RESISTANCE IN CIRCUIT 611 (W/O)		
<ul style="list-style-type: none"> <li>Using an ohmmeter find resistance in Pin 15 Circuit 611 (W/O) on diagnostic monitor wiring connector and to ground.</li> <li>Is resistance less than 1 ohm?</li> </ul>		No	REPLACE diagnostic monitor. RECONNECT system. VERIFY Air Bag lamp. REACTIVATE system.
		Yes	GO to 3.5.
3.5	CHECK RESISTANCE IN CIRCUIT 611 (W/O) — CONTINUED		
<ul style="list-style-type: none"> <li>Disconnect rear safing sensor.</li> <li>Attach ohmmeter to Pin 15 (Circuit 611, W/O) on diagnostic monitor wiring connector and to ground.</li> <li>Is resistance less than 1 ohm?</li> </ul>		No	GO to 3.7.
		Yes	GO to 3.6.
3.6	CHECK RESISTANCE IN CIRCUIT 611 (W/O) — CONTINUED		
<ul style="list-style-type: none"> <li>Disconnect center front sensor.</li> <li>Attach ohmmeter to Pin 15 (611 W/O) on diagnostic monitor wiring connector and to ground.</li> <li>Is resistance less than 1 ohm?</li> </ul>		No	REPLACE center front sensor. REPLACE diagnostic monitor. RECONNECT system. VERIFY Air Bag lamp. REACTIVATE system.
		Yes	TRACE Circuit 611 (W/O) to find contact to ground and SERVICE. REPLACE diagnostic monitor. RECONNECT system. VERIFY Air Bag lamp. REACTIVATE system.

## DIAGNOSIS AND TESTING (Continued)

# **Fault Indication — Air Bag Lamp Flashes Three Times** **Probable Fault — Loss of Air Bag Circuit Deployment Power** **or Backup Power Supply Disconnected**

TEST STEP	RESULT	ACTION TO TAKE
<p>3.7 CHECK RESISTANCE IN CIRCUIT 612 (P/O)</p> <ul style="list-style-type: none"> <li>• Attach ohmmeter to Circuit 612 (P/O) on rear safing sensor wiring connector and to ground.</li> <li>• Is resistance less than 1 ohm?</li> </ul> <div>  <p>REAR SAFING SENSOR CONNECTOR</p> </div>	<p>No</p> <p>Yes</p>	<p>▶ REPLACE rear safing sensor. REPLACE diagnostic monitor. RECONNECT system. VERIFY Air Bag lamp. REACTIVATE system.</p> <p>▶ TRACE Circuit 612 (P/O) to find contact to ground and SERVICE. REPLACE diagnostic monitor. RECONNECT system. VERIFY Air Bag lamp. REACTIVATE system.</p>



## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Four Times

### Probable Fault — Potential Short in Air Bag Deployment Circuit

TEST STEP		RESULT	ACTION TO TAKE
<b>4.0</b>	DURING SYSTEM PROVE-OUT AIR BAG LAMP PROVIDES A FAULT INDICATION OF 4 FLASHES		
<b>4.1</b>	CHECK REAR SAFING SENSOR GROUND		
	<ul style="list-style-type: none"> <li>Deactivate system.</li> <li>Place jumper wire on dash panel sensor Circuit 613 (DBW) and to ground.</li> <li>Verify lamp. Does Air Bag lamp flash code 4?</li> </ul>	Yes  No	GO to 4.4.  GO to 4.2.
<b>4.2</b>	CONTINUE REAR SAFING SENSOR CHECK		
	<ul style="list-style-type: none"> <li>Remove jumper wire.</li> <li>Loosen and tighten rear safing sensor attaching screws.</li> <li>Turn ignition switch to RUN.</li> <li>Does Air Bag lamp flash code 4?</li> </ul>	Yes  No	GO to 4.3.  VERIFY air bag lamp.
<b>4.3</b>	CHECK SAFING SENSOR GROUND CIRCUIT		
	<ul style="list-style-type: none"> <li>Turn ignition switch to OFF.</li> <li>Disconnect rear safing sensor wiring connector.</li> <li>Attach ohmmeter to Circuit 613 (DBW) in sensor connector and to ground.</li> <li>Is resistance less than one ohm?</li> </ul>	Yes  No	INSPECT connector terminals and wires and SERVICE as required. REACTIVATE system. VERIFY Air Bag lamp.  REPLACE rear safing sensor. REACTIVATE system. VERIFY Air Bag lamp.
<b>4.4</b>	CHECK 611 CIRCUIT IN CENTER FRONT SENSOR		
	<ul style="list-style-type: none"> <li>Remove jumper wire.</li> <li>Disconnect center front sensor.</li> <li>Verify lamp. Does lamp flash code 4?</li> </ul>	Yes  No	GO to 4.5.  REPLACE center front sensor. RECONNECT system. VERIFY lamp. REACTIVATE system. VERIFY lamp.
<b>4.5</b>	CONTINUE CIRCUIT 611 CHECK		
	<ul style="list-style-type: none"> <li>Check resistance between Circuit 611 (Pin 15) and 612 (Pin 23) at the back of the diagnostic monitor connector.</li> <li>Is resistance less than one ohm?</li> </ul>	Yes  No	GO to 4.7.  GO to 4.6.

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Four Times

### Probable Fault — Potential Short in Air Bag Deployment Circuit

TEST STEP		RESULT	ACTION TO TAKE
4.6	CHECK 611 IN REAR SAFING SENSOR		
	<ul style="list-style-type: none"> <li>• Disconnect rear safing sensor.</li> <li>• Check resistance between Circuit 611 (W/O) and 612 (P/O).</li> <li>• Is resistance less than one ohm?</li> </ul>	Yes	<p>TRACE Circuits 611 and 612 back to diagnostic monitor for open circuit and SERVICE (check connectors and terminals to confirm proper connections). If no open circuit exists, REPLACE diagnostic monitor. RECONNECT system. REACTIVATE system. VERIFY Air Bag lamp.</p>
		No	<p>REPLACE rear safing sensor. RECONNECT system. REACTIVATE system. VERIFY Air Bag lamp.</p>
4.7	CHECK FOR REAR SAFING SENSOR SHORT OR FORWARD CRASH SENSOR INPUT SHORT		
	<ul style="list-style-type: none"> <li>• Check voltage at back of diagnostic module connector Circuit 617 (Pin 17, PK/O) and to ground.</li> <li>• Is voltage less than one volt?</li> </ul>	Yes	<p>GO to 4.8.</p>
		No	<p>A short to B+ exists in the forward crash sensor input Circuits 615 (GY/W), 616 (PK/BK), 617 (PK/O), 619 (PK/W), or 621 (W/Y). DISCONNECT diagnostic module and CHECK for voltage on these circuits. If no short to B+ exists, REPLACE diagnostic module. RECONNECT system. REACTIVATE system. VERIFY Air Bag lamp.</p>
4.8	CHECK CIRCUIT 623 (P/W)		
	<ul style="list-style-type: none"> <li>• Disconnect rear safing sensor.</li> <li>• With voltmeter, probe wiring connector Circuit 623 (P/W) to ground.</li> <li>• Is 623 at battery voltage?</li> </ul>	Yes	<p>GO to 4.10.</p>
		No	<p>GO to 4.9.</p>

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Four Times

### Probable Fault — Potential Short in Air Bag Deployment Circuit

TEST STEP		RESULT	ACTION TO TAKE
<b>4.9</b>	<b>CHECK 623 OPEN</b>		
<ul style="list-style-type: none"> <li>• With voltmeter check voltage at back of diagnostic monitor connector, Circuit 623 (Pin 12, P/W).</li> <li>• Is 623 at battery voltage?</li> </ul>		Yes	SERVICE open in Circuit 623 (P/W) between diagnostic monitor and rear sensor. RECONNECT system. REACTIVATE system. VERIFY lamp.
		No	REPLACE diagnostic monitor.
<b>4.10</b>	<b>CHECK CIRCUIT 623 SHORT TO BATTERY POSITIVE (B+)</b>		
<ul style="list-style-type: none"> <li>• Disconnect diagnostic monitor.</li> <li>• With voltmeter, check rear safing sensor wiring connector Circuit 623 (P/W) and to ground.</li> <li>• Is 623 still at battery voltage?</li> </ul>		Yes	Short to B+ exists in Circuit 623 between diagnostic monitor and rear safing sensor. TRACE circuit and SERVICE. If no short exists, REPLACE diagnostic monitor. RECONNECT system. VERIFY Air Bag lamp. REACTIVATE system. VERIFY Air Bag lamp.
		No	RECONNECT diagnostic monitor. GO to 4.11.
<b>4.11</b>	<b>CHECK REAR SAFING SENSOR OR CIRCUIT 614</b>		
<ul style="list-style-type: none"> <li>• With diagnostic monitor reconnected check rear safing sensor resistance between Circuits 623 (P/W) and 614 (BY/O).</li> <li>• Is resistance less than one ohm?</li> </ul>		Yes	GO to 4.12.
		No	REPLACE rear safing sensor. RECONNECT system. REACTIVATE system. VERIFY Air Bag lamp.

## DIAGNOSIS AND TESTING (Continued)

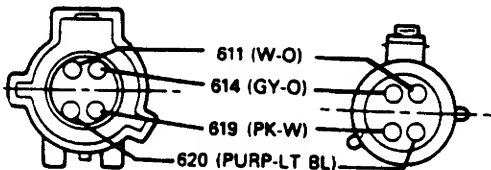
**Fault Indication — Air Bag Lamp Flashes Four Times**  
**Probable Fault — Potential Short In Air Bag Deployment Circuit**

TEST STEP		RESULT	ACTION TO TAKE
4.12	CONTINUE REAR SAFING SENSOR CHECKS		
<ul style="list-style-type: none"> <li>• Check rear safing sensor resistance between Circuit 623 (P/W) and Circuits 611 (W/O), 612 (P/O), and 613 (DB/W).</li> <li>• Are all paths open circuits (off scale)?</li> </ul>		Yes	<p>▶ An open exists in Circuit 614 (GY/O) between the rear safing sensor and the diagnostic monitor, Pins 8 and 11. FIND open and SERVICE. If no open exists, REPLACE diagnostic monitor. RECONNECT system. REACTIVATE system. VERIFY Air Bag lamp.</p>
		No	<p>▶ REPLACE rear safing sensor. RECONNECT system. REACTIVATE system. VERIFY Air Bag lamp.</p>

## DIAGNOSIS AND TESTING (Continued)

### Fault Indication — Air Bag Lamp Flashes Five Times

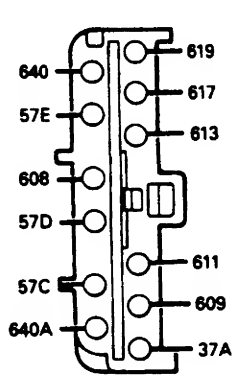
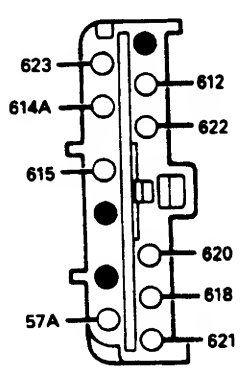
#### Probable Fault — Forward Crash Sensor Or Ignition Circuit Shorted to Ground

TEST STEP		RESULT	ACTION TO TAKE																
5.0	DURING SYSTEM PROVE-OUT AIR BAG LAMP PROVIDES A FAULT INDICATION OF 5 FLASHES																		
5.1	CHECK AIR BAGS																		
	<ul style="list-style-type: none"> <li>• Turn ignition switch to OFF.</li> <li>• Deactivate system.</li> <li>• Verify lamp. Does Air Bag lamp flash 5 times?</li> </ul>	Yes  No	GO to 5.2.  DISCONNECT battery ground and backup power supply. REPLACE driver air bag. RECONNECT and REACTIVATE system. VERIFY Air Bag lamp. If code 10 is present, REPLACE diagnostic monitor.																
5.2	VERIFY LAMP WITH ALL THREE FRONT SENSORS DISCONNECTED																		
	<ul style="list-style-type: none"> <li>• Deactivate system.</li> <li>• Disconnect all front sensors (Left, Right and Center).</li> <li>• Verify Air Bag lamp.</li> </ul>	Air Bag lamp flashes fault code 5 Air Bag lamp flashes fault code 10 Air Bag lamp does not flash either fault 5 or 10	GO to 5.3. GO to 5.4. REPLACE diagnostic monitor. RECONNECT system. VERIFY Air Bag lamp. REACTIVATE system.																
5.3	CHECK RESISTANCE OF THE FRONT SENSORS																		
	<ul style="list-style-type: none"> <li>• Check for intermittent short in Circuits 617, 619.</li> <li>• Perform all three of the following tests.</li> <li>• Attach ohmmeter to ground and to appropriate pin on each front sensor connector.</li> </ul>	Yes	REPLACE diagnostic monitor. RECONNECT system. VERIFY Air Bag lamp. REACTIVATE system.																
	<table border="1"> <thead> <tr> <th>Sensor</th><th>Circuit</th><th>Pin</th><th>Wire Color</th></tr> </thead> <tbody> <tr> <td>Right</td><td>617</td><td>17</td><td>PK/O</td></tr> <tr> <td>Left</td><td>621</td><td>19</td><td>PK/O</td></tr> <tr> <td>Center</td><td>619</td><td>18</td><td>PK/W</td></tr> </tbody> </table>	Sensor	Circuit	Pin	Wire Color	Right	617	17	PK/O	Left	621	19	PK/O	Center	619	18	PK/W	Resistance is NOT between 1000-1300 ohms for one or all sensors	REPLACE faulty sensor(s). VERIFY Air Bag lamp. If lamp flashes fault code 10, INSTALL a new diagnostic monitor. REACTIVATE system. VERIFY Air Bag lamp.
Sensor	Circuit	Pin	Wire Color																
Right	617	17	PK/O																
Left	621	19	PK/O																
Center	619	18	PK/W																
	<ul style="list-style-type: none"> <li>• Is resistance between 1000-1300 ohms for each sensor?</li> </ul> <p style="text-align: center;">FRONT CENTER SENSOR</p> 																		

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Five Times

### Probable Fault — Shorted Forward Crash Sensor Deployment Circuit

TEST STEP			RESULT	ACTION TO TAKE
5.4	CHECK RESISTANCE IN CIRCUITS 617 (PK/O), 619 (PK/W) AND 621 (W/Y)		Yes	TRACE appropriate circuit(s) to find contact to ground and SERVICE. RECONNECT system. VERIFY Air Bag lamp. If lamp flashes fault code 10, INSTALL a new diagnostic monitor. REACTIVATE system. VERIFY Air Bag lamp.
<ul style="list-style-type: none"><li>• Disconnect diagnostic monitor.</li><li>• Perform all three of the following tests.</li><li>• Attach ohmmeter to ground and to appropriate pin on the diagnostic monitor wiring connector.</li></ul>				
Pin No.	Circuit	Wire Color		
17	617	PK/O		
18	619	PK/W		
19	621	W/Y		
<ul style="list-style-type: none"><li>• Is resistance less than 1 ohm for any test?</li></ul>			Resistance is 1 ohm or greater	GO to 5.5.
				
				
			J.7.	
			CR6737-A	
5.5	CHECK CIRCUIT 615 (GY/W) BETWEEN MONITOR AND DRIVER AIR BAG			
<ul style="list-style-type: none"><li>• Remove jumper in wiring connector to driver bag. Leave open.</li><li>• Fault code should change to Code 4 or Code 5.</li></ul>				

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Five Times

### Probable Fault — Forward Crash Sensor or Igniter Circuit Shorted to Ground

TEST STEP		RESULT	ACTION TO TAKE
5.6	CHECK CLOCKSPrING		
<ul style="list-style-type: none"> <li>• Short to ground in Circuit 615 (GY/W) between driver air bag and diagnostic monitor.</li> <li>• Disconnect clockspring connector to 14401 at base of column.</li> <li>• Jumper wiring connector Circuits 614 (GY/O) and 615 (GY/W).</li> <li>• Verify lamp. Does lamp flash code 6?</li> </ul>		Yes	TRACE and SERVICE Circuit 615 short to ground between clockspring and diagnostic monitor. If code 10 is present, or no short exists, REPLACE diagnostic monitor.
		No lamp goes out	REPLACE clockspring. RECONNECT system. If code 10 is present, REPLACE monitor. VERIFY Air Bag lamp.
5.7	SHORT IN CIRCUIT 614 (GY/O) OR 623 (P/W) CHECK CIRCUIT 614 (GY/O)		
<ul style="list-style-type: none"> <li>• Disconnect rear safing sensor.</li> <li>• With an ohmmeter, check Circuit 614 (GY/O) Pin 11 and ground.</li> <li>• Is resistance less than 1 ohm?</li> </ul>		Yes	A short to ground exists in Circuit 614 (GY/O) between safing sensors, air bag and Pin 11 of diagnostic monitor. TRACE short to ground. REPAIR as required. RECONNECT and REACTIVATE system. VERIFY lamp. If no short is found, or code 10 is present, replace diagnostic module.
		No	GO to 5.8.
5.8	CHECK CIRCUIT 623 (P/W) PIN 12		
<ul style="list-style-type: none"> <li>• With an ohmmeter check Circuit 623 (P/W) Pin 12 and ground.</li> <li>• Is resistance less than 1 ohm?</li> </ul>		Yes	TRACE short to ground in Circuit 623 (P/W). REPAIR as required. RECONNECT and REACTIVATE system. VERIFY lamp. If code 10 exists, REPLACE monitor.
		No	GO to 5.9.

## DIAGNOSIS AND TESTING (Continued)

**Fault Indication — Air Bag Lamp Flashes Five Times**  
**Probable Fault — Forward Crash Sensor or Igniter Circuit Shorted to Ground**

TEST STEP		RESULT	ACTION TO TAKE
5.9	CHECK REAR SAFING SENSOR		
<ul style="list-style-type: none"><li>• With an ohmmeter, check Circuit 623 (P/W) in sensor connector and ground. (With sensor attached to vehicle.)</li><li>• Is resistance less than 1 ohm?</li></ul>		Yes	REPLACE rear safing sensor. If code 10 exists, REPLACE diagnostic monitor. RECONNECT and REACTIVATE system. VERIFY Air Bag lamp.
		No	REPLACE diagnostic monitor. RECONNECT and REACTIVATE system. VERIFY Air Bag lamp.



## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Six Times Probable Fault — Driver Air Bag Circuit Inoperative

TEST STEP		RESULT	ACTION TO TAKE
6.0	DURING SYSTEM PROVE-OUT AIR BAG LAMP PROVIDES A FAULT CODE OF 6 FLASHES		
6.1	CHECK CLOCKSPrING		
	<ul style="list-style-type: none"> <li>Deactivate air bag system.</li> <li>Verify air bag lamp while slowly rotating the steering wheel assembly.</li> <li>Does the air bag lamp still flash fault code 6 and/or flash intermittently?</li> </ul>	Yes  No	GO to 6.2.  DISCONNECT battery ground cable and backup power supply. REMOVE jumper wire. INSTALL a new driver air bag. RECONNECT system. VERIFY air bag lamp.
6.2	CHECK SLIP RING — CONTINUED		
	<ul style="list-style-type: none"> <li>Disconnect air bag clockspring wiring connector at base of steering column.</li> <li>Place a jumper wire across Circuits 614 (GY/O) and 615 (PK) of the clockspring connector.</li> <li>Verify air bag lamp.</li> <li>Does the air bag lamp still flash fault code 6?</li> </ul>	Yes  No	GO to 6.3.  DISCONNECT battery ground cable and backup power supply. REMOVE jumper wire from air bag clockspring wiring connector. INSTALL new clockspring. RECONNECT system. VERIFY air bag lamp. REACTIVATE system.
6.3	CHECK AIR BAG DIAGNOSTIC MONITOR CONNECTORS		
	<ul style="list-style-type: none"> <li>Remove jumper wire from air bag clockspring wiring connector.</li> <li>Disconnect diagnostic monitor connectors.</li> <li>Before continuing, visually inspect connector to ensure that Pin 11, Circuit 614 (GY/O) and Pin 10, Circuit 615 (GY/W) are touching.</li> <li>Attach ohmmeter to Pin 11, Circuit 614 (GY/O) on the monitor wiring connector and to the (GY/O) clockspring wiring connector. Is resistance less than 1 ohm?</li> </ul>	Yes  No	GO to 6.4.  TRACE circuit 614 (GY/O) from clockspring wiring connector to diagnostic monitor connector to locate and SERVICE open circuit. RECONNECT system. REACTIVATE air bag system. VERIFY air bag lamp.

## DIAGNOSIS AND TESTING (Continued)

**Fault Indication — Air Bag Lamp Flashes Six Times**  
**Probable Fault — Driver Air Bag Circuit Inoperative**

TEST STEP		RESULT	ACTION TO TAKE
6.4	CHECK RESISTANCE IN CIRCUITS		
<ul style="list-style-type: none"><li>• Attach ohmmeter to Pin 11, Circuit 614 (GY/O) on diagnostic monitor wiring connector and to Circuit 615 (GY/W) on the clockspring connector.</li><li>• Is resistance less than 1 ohm?</li></ul>		Yes	INSTALL a new diagnostic monitor. RECONNECT system. REACTIVATE system. VERIFY Air Bag lamp.
		No	TRACE Circuit 615 (GY/W) from clockspring connector to diagnostic monitor to find open and SERVICE. RECONNECT system. REACTIVATE system. VERIFY Air Bag lamp.

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Seven Times

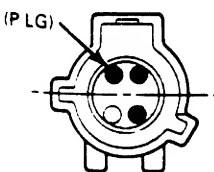
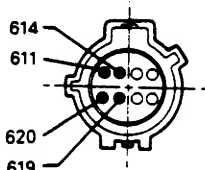
### Probable Fault — Monitor Wiring Circuit Inoperative

TEST STEP		RESULT	ACTION TO TAKE
7.0	DURING SYSTEM PROVE-OUT AIR BAG LAMP PROVIDES A FAULT INDICATION OF 7 FLASHES		
7.1	VERIFY AIR BAG LAMP		
	<ul style="list-style-type: none"> <li>Deactivate air bag system.</li> <li>Visually inspect diagnostic monitor wiring connector.</li> <li>Reconnect diagnostic monitor wiring connector.</li> <li>Does the Air Bag lamp flash code 7?</li> </ul>	Yes  No	GO to 7.2.  REACTIVATE system. TURN ignition switch to RUN. VERIFY Air Bag lamp.
7.2	INSPECT DIAGNOSTIC MONITOR PIN 7; CIRCUIT 57		
	<ul style="list-style-type: none"> <li>Disconnect diagnostic monitor.</li> <li>Inspect Pin 7, Circuit 57 (BK) in wiring connector for good connection to monitor.</li> <li>Is Pin 7 properly seated and good contact made?</li> </ul>	Yes  No	GO to 7.3.  SERVICE terminal and/or connector. RECONNECT diagnostic monitor. VERIFY Air Bag lamp.
7.3	INSPECT CIRCUIT 57		
	<ul style="list-style-type: none"> <li>With ohmmeter, measure resistance from Pin 7, Circuit 57 (BK) to ground.</li> <li>Is resistance less than one ohm?</li> </ul>	Yes  No	REPLACE diagnostic monitor. RECONNECT system. VERIFY Air Bag lamp.  FIND open circuit and SERVICE. RECONNECT system. VERIFY Air Bag lamp.

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Eight Times

### Probable Fault — Forward Crash Sensor Improperly Attached or Grounded

TEST STEP			RESULT	ACTION TO TAKE												
8.0	DURING SYSTEM PROVE-OUT AIR BAG LAMP PROVIDES A FAULT INDICATION OF 8 FLASHES															
8.1	INSPECT FRONT SENSORS		Yes  No	GO to 8.2.  ATTACH sensor(s) properly. VERIFY Air Bag lamp.												
<ul style="list-style-type: none"><li>Visually inspect each front sensor to ensure they are attached (properly grounded) to the vehicle.</li><li>Are all sensors properly attached to vehicle?</li></ul>																
8.2	INSPECT EACH SENSOR'S WIRING CONNECTORS		Yes  No	GO to 8.3.  CONNECT sensor(s) properly. VERIFY Air Bag lamp.												
<ul style="list-style-type: none"><li>Visually check each front sensor connector for proper connection to the vehicle wiring.</li><li>Are all sensors properly connected?</li></ul>																
8.3	CHECK FOR RESISTANCE IN FRONT SENSORS		Yes  No	GO to 8.4.  REPLACE sensor(s). VERIFY Air Bag lamp.												
<ul style="list-style-type: none"><li>Disconnect battery ground cable and power supply.</li><li>Disconnect all front sensors.</li><li>Perform the following tests.</li><li>Attach an ohmmeter to ground and to appropriate pin on each front sensor connector.</li></ul>																
<table><tr><th>Sensor</th><th>Circuit</th><th>Wire Color</th></tr><tr><td>Right</td><td>618</td><td>P/LG</td></tr><tr><td>Left</td><td>622</td><td>T/BK</td></tr><tr><td>Center</td><td>620</td><td>P/LB</td></tr></table>			Sensor	Circuit	Wire Color	Right	618	P/LG	Left	622	T/BK	Center	620	P/LB		
Sensor	Circuit	Wire Color														
Right	618	P/LG														
Left	622	T/BK														
Center	620	P/LB														
<ul style="list-style-type: none"><li>Is resistance less than 1 ohm for each test?</li></ul>																
<div><div><p>RH AND LH FRONT SENSOR CONNECTOR</p></div><div><p>FRONT CENTER SENSOR CONNECTOR</p></div></div>																

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Eight Times

### Probable Fault — Forward Crash Sensor Improperly Attached or Grounded

TEST STEP			RESULT	ACTION TO TAKE
8.4	CHECK FOR RESISTANCE IN CIRCUITS 618 (P/LG), 620 (P/LB) AND 622 (T/BK)		Yes	INSPECT terminals in diagnostic monitor connector and SERVICE as required. If terminals and connections are OK, INSTALL a new diagnostic monitor. RECONNECT system. VERIFY Air Bag lamp.
<ul style="list-style-type: none"><li>● Reconnect all front sensors.</li><li>● Perform all three of the following tests.</li><li>● Attach ohmmeter to ground and to appropriate pin on diagnostic monitor connector. Probe back of connector.</li></ul>				
Pin No.	Circuit	Wire Color	No	TRACE appropriate circuit(s) to find open(s) and SERVICE. RECONNECT system. VERIFY Air Bag lamp.
20	618	P/LG		
21	620	P/LB		
22	622	T/BK		
<ul style="list-style-type: none"><li>● Is the resistance less than 1 ohm for each test?</li></ul>				

## DIAGNOSIS AND TESTING (Continued)

## Fault Indication — Air Bag Lamp Flashes Nine Times

### Probable Fault — Open Forward Crash Sensor Deployment Circuit

TEST STEP			RESULT	ACTION TO TAKE												
9.0 DURING SYSTEM PROVE-OUT AIR BAG LAMP PROVIDES A FAULT INDICATION OF 9 FLASHES																
9.1	INSPECT EACH FRONT SENSOR CONNECTOR TO VEHICLE WIRING		Yes  No	GO to 9.2.  CONNECT sensor(s) properly. VERIFY air bag lamp.												
<ul style="list-style-type: none"><li>• Visually inspect each front sensor, left, right, and center for a proper connection to the vehicle wiring.</li><li>• Are all sensors properly connected?</li></ul>																
9.2	CHECK RESISTANCE OF EACH FRONT SENSOR		Yes  No	GO to 9.3.  REPLACE those sensors that did not have a resistance between 1000-1300 ohms. RECONNECT system. VERIFY air bag lamp.												
<ul style="list-style-type: none"><li>• Disconnect battery ground cable and power supply.</li><li>• Disconnect all front sensors.</li><li>• Perform all three of the following tests on all three of the front sensors.</li><li>• Attach ohmmeter to ground and to appropriate pin on front sensor connector.</li></ul>																
<table><tr><td>Sensor</td><td>Circuit</td><td>Wire Color</td></tr><tr><td>Right</td><td>617</td><td>PK/O</td></tr><tr><td>Center</td><td>619</td><td>PK/W</td></tr><tr><td>Left</td><td>621</td><td>W/Y</td></tr></table>			Sensor	Circuit	Wire Color	Right	617	PK/O	Center	619	PK/W	Left	621	W/Y		
Sensor	Circuit	Wire Color														
Right	617	PK/O														
Center	619	PK/W														
Left	621	W/Y														
<ul style="list-style-type: none"><li>• Is resistance of each sensor between 1000-1300 ohms for each test?</li></ul>																
9.3	CHECK RESISTANCE OF CIRCUITS 617 (PK/O), 619 (PK/W) AND 621 (W/Y)		Yes  No	REPLACE diagnostic monitor. RECONNECT system. VERIFY air bag lamp. REACTIVATE system.  TRACE appropriate circuits to locate opens and SERVICE. RECONNECT system. VERIFY air bag lamp. REACTIVATE system.												
<ul style="list-style-type: none"><li>• Reconnect front sensors.</li><li>• Deactivate system.</li><li>• Perform all three of the following tests.</li><li>• Disconnect diagnostic monitor and attach ohmmeter to ground and to appropriate pin on diagnostic monitor wiring connector.</li></ul>																
<table><tr><td>Pin No.</td><td>Circuit</td><td>Wire Color</td></tr><tr><td>17</td><td>617</td><td>PK/O</td></tr><tr><td>18</td><td>619</td><td>PK/W</td></tr><tr><td>19</td><td>621</td><td>W/Y</td></tr></table>			Pin No.	Circuit	Wire Color	17	617	PK/O	18	619	PK/W	19	621	W/Y		
Pin No.	Circuit	Wire Color														
17	617	PK/O														
18	619	PK/W														
19	621	W/Y														
<ul style="list-style-type: none"><li>• Is the resistance between 1000-1300 ohms for each test?</li></ul>																

CR4885

## SPECIFICATIONS

## MAJOR SYSTEM COMPONENT PART NUMBERS

Component	Part Number
Driver Air Bag	54043813 A
Sensor and Bracket Assy, Front Right	14B004 A
Sensor and Bracket Assy, Center	14B006 A
Sensor and Bracket Assy, Rear	14B007 A
Sensor and Bracket Assy, Front Left	14B005 A
Backup Power Supply	14B165 A

CR6216-B

## TORQUE SPECIFICATIONS

Description	N·m	Lb·Ft
Air-Bag Module-to-Steering Wheel Nuts	4-6	35-53 (Lb·In)
Front Center Sensor-to-Radiator Support Screws	5-7	4-5
RH and LH Front Sensor-to-Fender Apron Screws	8.7-12.3	6-9
Rear Sensor-to-Dash Panel Nuts	5-7	4-5

CR4156-C

## SPECIAL SERVICE TOOLS

## ROTUNDA EQUIPMENT

Model	Description
059-00010	Dwell-Tach-Volt-Ohms Tester

CG5360-A

## DIAGNOSIS AND TESTING (Continued)

**Fault Indication — Air Bag Lamp Flashes Three Times**  
**Probable Fault — Loss of Air Bag Circuit Deployment Power**  
**and/or Backup Power Supply Disconnected**

TEST STEP		RESULT	ACTION TO TAKE
3.4	CHECK RESISTANCE IN CIRCUIT 611 (W/O)		
<ul style="list-style-type: none"> <li>Using an ohmmeter find resistance in Pin 15 Circuit 611 (W/O) on diagnostic monitor wiring connector and to ground.</li> <li>Is resistance less than 1 ohm?</li> </ul>		No	REPLACE diagnostic monitor. RECONNECT system. VERIFY Air Bag lamp. REACTIVATE system.
		Yes	GO to 3.5.
3.5	CHECK RESISTANCE IN CIRCUIT 611 (W/O) — CONTINUED		
<ul style="list-style-type: none"> <li>Disconnect rear safing sensor.</li> <li>Attach ohmmeter to Pin 15 (Circuit 611, W/O) on diagnostic monitor wiring connector and to ground.</li> <li>Is resistance less than 1 ohm?</li> </ul>		No	GO to 3.7.
		Yes	GO to 3.6.
3.6	CHECK RESISTANCE IN CIRCUIT 611 (W/O) — CONTINUED		
<ul style="list-style-type: none"> <li>Disconnect center front sensor.</li> <li>Attach ohmmeter to Pin 15 (611 W/O) on diagnostic monitor wiring connector and to ground.</li> <li>Is resistance less than 1 ohm?</li> </ul>		No	REPLACE center front sensor. REPLACE diagnostic monitor. RECONNECT system. VERIFY Air Bag lamp. REACTIVATE system.
		Yes	TRACE Circuit 611 (W/O) to find contact to ground and SERVICE. REPLACE diagnostic monitor. RECONNECT system. VERIFY Air Bag lamp. REACTIVATE system.